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MONITORING TIMES

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Grove Enterprises



Monitoring "The Big One" Albuquerque's International Balloon Fiesta

Scanner Action At the Football Stadium

The Hottest Catches in Shortwave Broadcasting

Review:
JRC's Classy NRD-535

Complete Guide to
English Language
Shortwave Broadcasts



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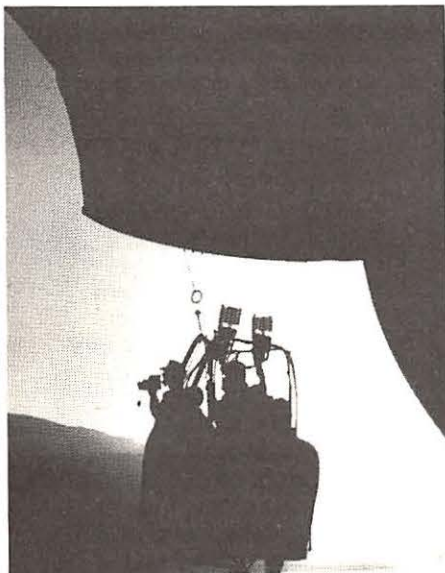
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MONITORING TIMES



At the Albuquerque Balloon Fiesta

by Steve Douglass

8

It's a rare event that delights the whole family as much as it does the scanner buff who dragged them there. The Albuquerque International Balloon Fiesta in October is one of those occasions. Load up the family, the scanner (don't forget the earphones), and come armed with film.

Shortwave's Hottest Frequencies

by Charles Sorrell

14

Does it seem as though all the excitement and adventure is on the utility side of shortwave listening? Don't you believe it. Check out this sampler of challenging frequencies, broadcast battle zones, and history in the making, all on the broadcast bands.



Scanner Action at the Football Stadium

by Wayne Heinen

18

Big crowds can mean big problems. An enormous amount of coordination is required to keep traffic and crowds flowing smoothly, inside and outside the stadium. Check out the frequencies used by the NFL, and enjoy an indepth look at Rich Stadium, home of the Buffalo Bills.

Turning up the Volume on Shortwave

by Jeff Chanowitz

22

Close to two hundred major shortwave broadcasters pool their corporate visions and plot the future of shortwave broadcasting.

Duty Calls

by P.J. Richardson

26

It's Halloween; take a trip with us into the twilight zone where a life-long dream comes true.

And More ...

Last month we reviewed the Drake R8. The big story in October is Magne's assessment of 1991's other major new receiver, the Japan Radio NRD-535 (p.96). This bonanza after months of cheap portables is like too much dessert! Unfortunately, AOR's AR2800 scanner, reviewed on page 98, doesn't stack up nearly as well.

Van Horn finds himself staring at his shortwave receiver and wondering, "Whose hand is on the Soviet nuclear button?" This scary thought prompts him to research what we know about Soviet military frequencies (p.32). And Rod Pearson discloses the Soviet's emergency plan for crash landing in America's Midwest (p.46)!

The Shortwave Guide is our pride and joy, and no wonder, with monitors like David Datko. We have it on good authority that this month David took a boat to Catalina Island and hiked up the back of a mountain in order to dig out the most accurate signals for you folks on the west coast. *MT* staff does its best to bring you the best!

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MONITORING TIMES

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LETTERS

Two hobbyists are happily back to monitoring now that their scanners have been returned by the police. In August, *MT* reported on Christian Stamm of Kansas, who possessed a scanner as a member of the Red Cross disaster team, but lost the scanner to the police when he loaned his van to a friend. Overland Park, Kansas, has an ordinance which forbids citizens to have a "police monitor" in a vehicle.

When *MT* called the Overland Park Police Department, Major John Round told us Stamm was free to pick up his scanner at any time.

The second incident concerned Lawrence Estep, whose story was told in Bob Grove's September "Closing Comments." Estep is a young TV news photographer and emergency team volunteer in New Albany, Indiana, who not only had his scanner confiscated, but was charged under state law 35-44-3-12. Not long after a friend posted the *MT* article in the New Albany police department, however, Estep received word that all charges were being dropped.

Congratulations, gentlemen; that's the kind of news we like to hear. Reader K4KLJ says, "Scanner buffs aren't eavesdroppers; they just want to know what's going on."

The upheaval in the Soviet Union this past August definitely gave an added boost to the public's interest in shortwave listening, but not all broadcasters are riding the wave. Connie Lawn, a reporter for Kol Israel, sent us a copy of the *Jerusalem Post*

scouring that station for cutting off broadcasts to North America "just as shortwave listening has reached an apparent all-time high in the U.S."

Lawn seems in agreement with Elan Steinberg, executive director of the World Jewish Congress, who was quoted as saying, "At one of the critical moments in Israel's political life, this shortsighted move is catastrophic and self-defeating."

Kol Israel had granted a two-month reprieve to this summer's planned scheduling cuts while a committee studied the matter. However, the North American broadcasts were discontinued in early August. Ostensibly the funding will be shifted to provide more broadcasting directed toward Soviet and Ethiopian immigrants. You may write Kol Israel at P.O. Box 1082, Jerusalem 91010, Israel.

George Schnabel of Rochester, New York, sent us a clipping from the *Times-Union* which extolled once again the diversity that can still be found on shortwave radio. While domestic stations are competing for 24 hour coverage of the latest crisis, shortwave listeners have the option of listening in directly or tuning across the dial to see what has been happening in the rest of the world.

Doesn't it make you feel smug whenever the media or the politicians rediscover the revolutionary power of the airwaves? But don't be smug; be grateful. Both our right to access radio communications and the ability of agencies and governments to provide quality broadcasting are under siege. We need all the friends we can find when it comes to defending

our rights. And we must support those stations and agencies struggling to keep information on the air and in the clear.

"Oh, for the good old days!" sigh Harold Bower (Sunbury, PA) and Walter Breville (St. Louis, MO). Those were the days, they say, when there were no computers to get viruses (August issue), there were no machines that answered telephones (isn't there a virus that can wipe out answering machines?), you could go star-gazing without being surrounded by halogen lights, and DXing was an SWL's dream.

Earle Doan (Collingswood, NJ) says he's DXed since his first oat meal box wrapped with wire. "With my one tuber I heard stations from all over the U.S.," he says. We enjoyed photocopies of some prized QSLs from Gimbel Brothers (1922) and Westinghouse and NBC's shortwave outlets, among others.

Earle also admits to being a fire buff, and has enclosed a copy of his listening post. You've come a long way from that oatmeal box, Earle!

Walt Breville is longing for the 1930s for several other reasons. Jobs were hard to find then, as now, but Walt thinks the government at least seemed more concerned with the common citizen. Nowadays it seems officials are just looking to protect themselves for having said things they shouldn't over the airwaves. ...If they don't already have a tape of someone else. Harold Bower and Jim Boehm (San Antonio, TX), both voice resentment over the lack of prosecution for politicians or their employees who have been caught with taped cellular conversations.

Says Bower about the whole mess, "Anyone who says anything on any telephone, wired or not, that is not fit for publishing, is not all that swift and deserves what he gets."

Larry Blass (Garden City, NY), referring to the pirate who interrupted a July 4th simulcast, also worries about the spread of new technology. Will "situations like this

(please turn to p. 108)

From humble beginnings with a cat's whisker, Earle Doan has come a long way — "all over the world," in fact.



Capitalist Radio to the Rescue

When Soviet President Mikhail Gorbachev found himself suddenly "ill" and under house arrest at his summer retreat last month, he also found himself completely cut off from information about his own country. So where does a Soviet leader turn to find the latest about the coup that toppled him?

When Gorbachev was deposed, phone lines were cut and his family was, according to reports, "completely isolated from the outside world." Then a loyal bodyguard rigged up a shortwave radio and a makeshift antenna, and the one-time president of the Communist Party was back in touch.

It is ironic that the leader of a nation that at one time spent millions of dollars a year jamming the broadcasts of Radio Liberty, the Voice of America, the BBC and others, would one day have to rely on them for news about himself. But Gorbachev, aware of the irony, showed good humor, saying that "BBC came in best of all."

Baby Monitor Stars in Sex Case

A tape recording made by a mother who intercepted a cordless telephone call on her baby monitor is being used as evidence in the trial of a man accused of sexually abusing two boys. Judge James J. McGrath agreed with federal rulings saying that people who use cordless phones have no reasonable expectation of privacy.

Ivo L. Bidinost of Mayfield Heights, Ohio, the man who is charged in the case, was reportedly heard discussing the alleged crime on his cordless telephone, which was inadvertently intercepted by the woman's baby monitor. Police urged the woman to continue taping and she eventually delivered some seven hours of conversations into the hands of law enforcement officers.

To her horror, the mother who recorded the conversations for police found that it was her own two boys who had reportedly been the victims of the assault.

Killer Transmitter

Jim Devan, 43, of Henry County, Georgia, was electrocuted while working

on the transmitter of radio station WZAL. WZAL is a 2.5 kW AM station in McDonough, Georgia.

According to police reports, Devan, listed as the station's president, general manager and news director — but not chief engineer — was at the transmitter site when he took the fatal jolt. He was transported to Henry General Hospital where he later died. McDonough, Georgia, is located about an hour south of Atlanta.

No Kidding; Just Fooling Around

Walt Disney World has asked the FCC for permission to "test the effects of in-band FM digital transmission." According to *Radio World*, Disney's application for the experimental test authorization requests permission to transmit a digital signal on the adjacent channel of an existing experimental FM station already run by Disney World.

Radio station KA2XXZ, located near Lake City, Florida, has authorization to test a highly directional FM antenna pattern. The station radiates 250 watts of power and is operated by Disney's marketing department, broadcasting traffic, weather, and safety information.

Although Walt Disney World Publicity Manager John Dreyer denied that the request was simply a ploy to extend the license of KA2XXZ, which was due to expire, Dreyer did admit that Disney has no plans to get into digital broadcasting. Said Dreyer, the company "has always been in the forefront of

technology and that this merely is an area we wish to explore."

High Power from BWI

January of 1992 is the planned kick-off date for a proposed high-powered station on the Caribbean island of South Caicos in the British West Indies. According to *Radio World*, a New York-based engineer is working on the 100 kW AM station that will "blanket a large part of the Southern Hemisphere with its signal."

Part of Radiovision Christiana's Atlantic Beacon facility (currently operating on 1580 at 25 kW but authorized for 100 kW), the station also has authorizations for two 100 kW stations at 530 kHz, another on an unspecified shortwave frequency and a 50 kilowatt at 100.1 FM. Estimated cost for the new station is between 1.3 and 1.5 million dollars.

Israeli Transmitter Fight Comes to U.S.

Lawyers at the U.S. Justice Department are reportedly bracing for an environmental lawsuit by Israeli citizens who want to prevent the United States from building a transmitter site in the Negev Desert. The transmitters would send signals from Radio Free Europe and Radio Liberty to countries in the region, including the southern republics of the USSR.

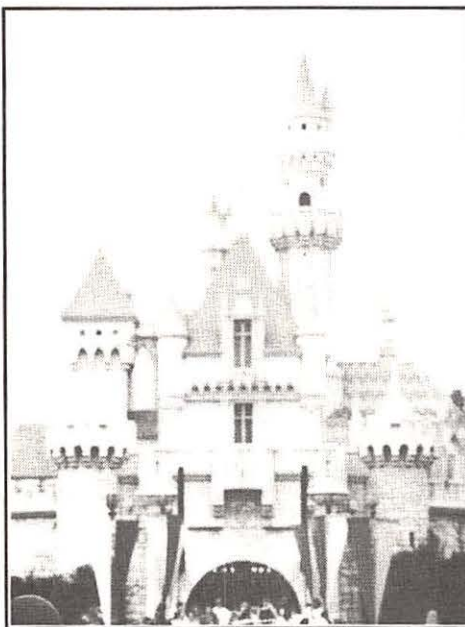
The Israelis who plan to initiate the U.S. suit are already working their way through the Israeli courts where their environmental impact statement is under heavy fire. The U.S. option will be used, they say, if their efforts fail in their own country.

Antennas and Spacecraft

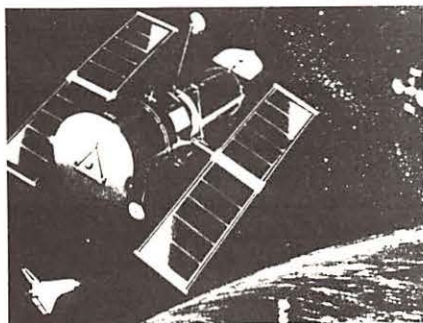
Antennas on six major spacecraft malfunctioned or were impaired by other glitches during the last 17 months, threatening the flow of crucial information from missions that cost \$5.3 billion.

Since April of 1990, Canada's Anik E2 television satellite, the NASA-European Space Agency Ulysses solar explorer, NASA's Jupiter-bound Galileo, Venus-mapping Magellan, Hubble Space Telescope and Gamma Ray Observatory have all experienced trouble.

According to scientists, the reasons for failure vary, but generally can be



Harry Baughn



attributed to the fact that antennas are growing bigger and more complex. Big antennas must be folded or otherwise stowed for launch and the moving parts are more likely to malfunction when extended or unfolded.

Sighed Hal Meese, who submitted the article to *Monitoring Times*, "At least I'm not the only one with antenna problems..."

Ex-Cop Uses Scanner to Nab Suspects

Two 27-year-old men were arrested less than an hour after they allegedly held up a Belmont, Massachusetts, convenience store, because of the quick wits of a scanner-toting ex-cop from Florida.

According to the *Boston Herald*, John Amato was listening to his scanner as he drove along Route 128. "I heard a good description of the get-away vehicle and I said, 'Wait a minute, I just passed the @#%#! thing.' I pulled over and sure enough they came chugging by," said Amato.

Tailing the two by some 200 yards, Amato said the car stuck out like a sore thumb. "They were doing 53 to 58 miles an hour. No one does the speed limit on 128."

Amato was able to provide police with a "running commentary" on the pursuit over his cellular phone. The suspects were later arrested by State Police.

Advertising Tax

Considering the possibility of advertising your business on the air or in print? If Perry Pockros, staff director for the House Administration Task Force on Campaign Reform, has his way, it'll end up costing 0.25 percent more.

Pockros, staff director for the House Administration Task Force on Campaign Reform, wants to tax advertising 0.25 percent. Unbelievably, the revenue would be used to finance political advertisements, campaign expenses, and "some

other proposals before the House Ways and Means Committee."

According to Pockros, if the tax were to be applied to last year's TV advertising revenues alone, the yield would be more than \$500 million. Pockros said it is undecided whether the tax would be placed on the advertiser, broadcaster, or publisher. The Task Force is chaired by U.S. Rep. Sam Gejdenson (D-CT).

Capitalists Come Through Again

When all other communications were cut, it was a ham station set up by an officer from an American company which kept Yeltsin's headquarters in touch with the world, according to an account in the Allentown, PA, *Morning Call*.



Romeo Stepanenko, 3W3RR

When word of the coup came to his ears, Yuri Brajenko, president of Moscow Boston International Ltd., offered shortwave equipment and operators to the Russian Supreme Soviet. For three days and nights, the station not only kept the western world apprised of events within the Russian Parliament, but also advised Yeltsin of conditions within the USSR as ham operators from all over the Soviet Union reported in.

MT reader KA3LAM, who submitted the clipping, notes that a fellow member of the Delaware Lehigh Amateur Radio Club, Bill Goodman, K3ANS, only two months earlier hosted Brajenko, station operator Yuri Stepanenko, and others in his home near Easton, Pennsylvania.

Credits:

Bill Battles, East Kingston, New Hampshire; Eddie Beck, Bogalusa, Louisiana; Steve Cochran, Norwood, Massachusetts; Ed Duncan, Smithville, New York; KA3LAM, Pennsylvania; Hal Meese, Riverside, California; Ceil Sart, Philadelphia, Pennsylvania; Cathy Turner, Yonkers, New York; Clive Zelman, Seattle, Wisconsin.

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Glossary

Most abbreviations and "radio shorthand" terms will be explained in the article in which they are used, but following is a list of terms and abbreviations you will find frequently in our pages. We hope you will find it useful.

| | | | |
|-----------|---|----------|--|
| AFB | Air Force Base | MARS | Military Affiliate Radio System |
| AFRES | Air Force Reserve | MF | Medium frequency; includes standard AM broadcast band (300 kHz-3MHz) |
| AM | Amplitude modulation (transmission mode) | MHz | Megahertz (1,000 kHz) |
| AMVER | Automated Merchant Vessel Rescue System | MOA | Military Operations Area |
| ANG | Air National Guard | MUF | Maximum usable frequency |
| ARRL | American Radio Relay League | NAS | Naval Air Station |
| ARRS | Aerospace Rescue and Recovery Service | NASA | National Aeronautics and Space Administration |
| ARTCC | Air Route Traffic Control Center | NG | National Guard |
| ATC | Air Traffic Control | NNNN | End of RTTY message |
| AWACS | Airborne Warning and Control System | NORAD | North American Aerospace Defense Command |
| Baud (Bd) | Bits of data per second | Op(s) | Operation(s) |
| BBC | British Broadcasting Corporation | PFC | Prepared form card |
| BFO | Beat frequency oscillator (for reception of CW, RTTY, etc.) | QRM | Noise or interference |
| CAP | Civil Air Patrol | QSL | Station's verification of a reception report from a listener |
| Comm | Communication | QSO | A two-way communication |
| COMSTA | Communications station | RAAF | Royal Australian Air Force |
| CQ | General call to anyone monitoring, inviting reply | RAF | Royal Air Force |
| CW | Continuous wave (Morse code) | RTTY | Radioteletype |
| DE | (French) "from"... ID or call sign | SAC | Strategic Air Command |
| DOD | Department of Defense | SAR | Search and rescue |
| Duplex | Two-way communications using two different frequencies. | SASE | Self-addressed stamped envelope |
| DX | CW abbreviation for distance | SATCOM | Satellite communications |
| DXer | One who listens to distant stations | Simplex | Two-way communication using one frequency |
| EAM | Emergency action messages | SINPO | A signal-quality rating system (1-5) on each of the following characteristics: strength, interference, noise, propagation, overall quality |
| ECPA | Electronic Communications Privacy Act of 1986 | SSB | Single sideband |
| EMS | Emergency Medical Service | SW | Shortwave |
| FAX | Facsimile | SWBC | Shortwave broadcast |
| FCC | Federal Communications Commission | SWL | Shortwave listener |
| FEMA | Federal Emergency Management Administration | TAC | Tactical Air Command; tactical |
| FM | Frequency modulation (transmission mode) | TFC | Traffic (communications) |
| GCCS | Global Communications and Control System | UHF | Ultra-high frequency (300-3,000 MHz) |
| GMDSS | Global Maritime Distress and Safety System | UKOGBANI | A "Hauserism" for United Kingdom of Great Britain and Northern Ireland |
| HF | High frequency; shortwave (3-30 MHz) | USAF | United States Air Force |
| Hz | Hertz: unit of frequency (formerly cycles per second) | USB | Upper sideband |
| ID | Identification | USIA | United States Information Agency |
| IF | Intermediate frequency | USCG | United States Coast Guard |
| IRC | International Reply Coupon (available from post office) | USCGC | United States Coast Guard Cutter |
| ISB | Independent sideband | USMC | United States Marine Corps |
| ITU | International Telecommunications Union | USN | United States Navy |
| kHz | Kilohertz (1000 Hertz) | UTC | Coordinated Universal Time-- The time at 0° longitude |
| kW | Kilowatt | Ute | Slang for utilities (2-way comms) |
| LCD | Liquid crystal display | VHF | Very high frequency (30-300 MHz) |
| LED | Light emitting diode | VLF | Very low frequency (3-30 kHz) |
| LF | Low frequency (30-300 kHz) | VOA | Voice of America |
| LORAN | Long Range Aid to Navigation | VOLMET | (French) "flying weather" |
| LSB | Lower sideband | WARC | World Administrative Radio Conference |
| | | wpm | Words per minute (usually used w/ Morse or RTTY) |
| | | WX | Weather |
| | | YL | "Young lady," female operator |
| | | // | Parallel frequency |



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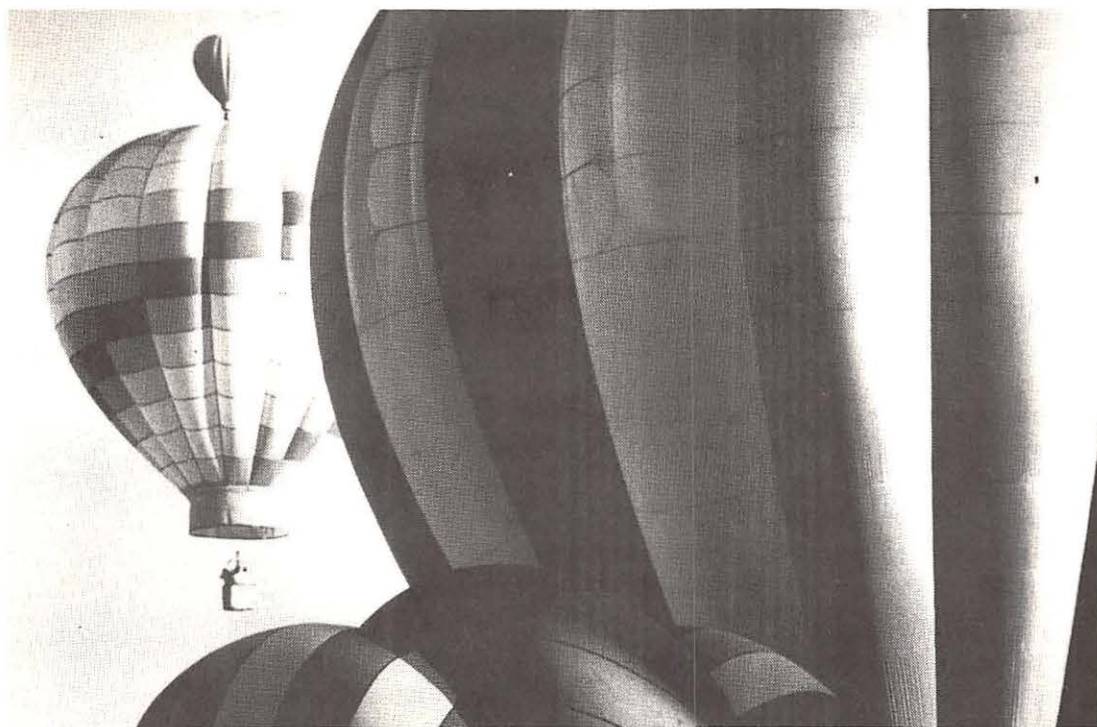
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Up, Up, and Away—

In the Air and On the Air at the Albuquerque Balloon Fiesta!

Story and photos by
Steve Douglass



The Albuquerque International Balloon Fiesta takes place in early October of each year. It is a thrilling event and a great place for radio monitors to hear all the behind-the-scene excitement!

It's a chilly October morning in New Mexico. The sun has not yet risen behind the cool grey mountains. A full pale moon beckons as if to say, "Come up and play!" The sweet smell of New Mexican breads and coffee drifts across the fiesta grounds.

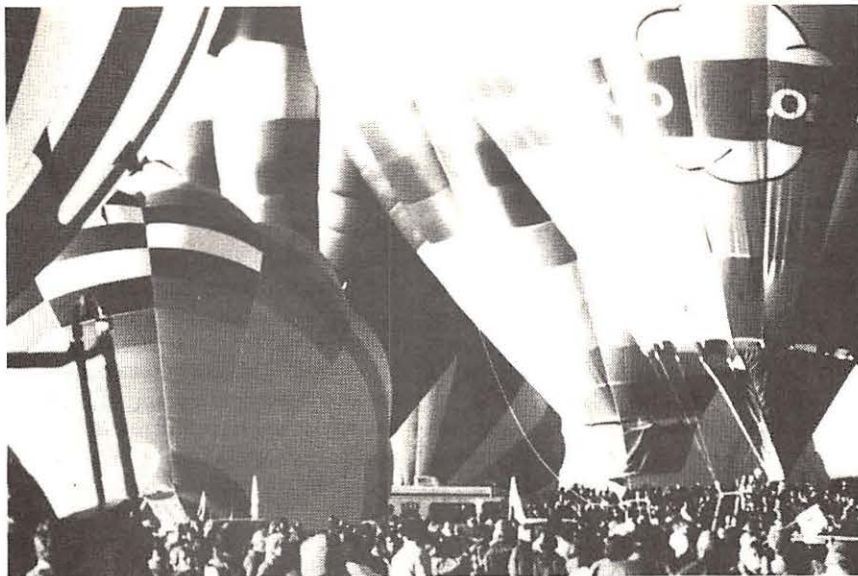
You shiver, button up your leather jacket, and think about the warm bed you were in just minutes before. Dark silhouettes scurry against a cobalt sky hustling equipment from the truckbeds. Large rolls of fabric spread across the cold ground.

Someone wets a finger and sticks it into the air to check the wind. There is none. Perfect flying conditions. Portable generators sputter to life, breaking the morning silence. The rolls of fabric open and air is forced into them from huge fans powered by the noisy generators. The field

is soon covered with lumbering inflated shapes as if a herd of drowsy elephants were awakening.

Woosh! A bright hot burst of flame lights up the sky and makes everyone jump. The propane burner glows orange and the dark moving mass of fabric begins to stand. Ground crew members struggle with ropes to hold the beast down as it struggles to leap into the air. The crowd buzzes with anticipation and VHF radios squawk with hurried radio checks. You set your scanner on search and struggle to jot down all the frequencies in use.

Soon the once barren field is crowded. Over a hundred thousand people mill about in the cold, loading cameras and sipping steaming cups of coffee, waiting for the first launch. All over the vast field, hundreds of monstrous shapes awaken



Fiesta Time. Over 800,000 people attended this year's ballooning events.

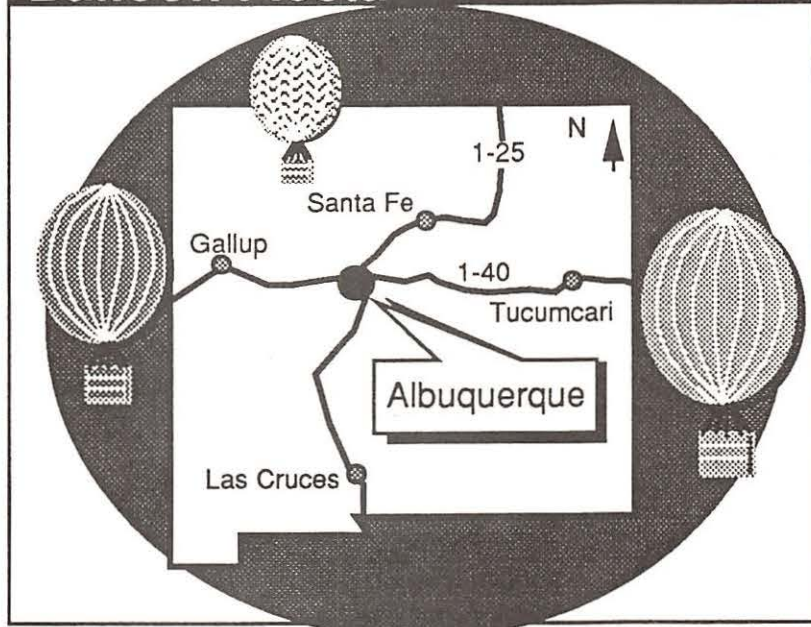
with bursts of orange flames illuminating cheerful faces. The weather is right. The sun is coming up. It is almost time.

The sky lightens as the sun struggles to top the peaks in the east. A golden beam of sunlight crests the mountains and radiates down upon the ground. The lumbering shapes become a sea of breath-taking beauty. You find yourself surrounded by a kaleidoscope of iridescent colors. The valley has come alive with hundreds of weaving, bobbing oversized toys. Giant clowns and witches struggle to stand. Garfield, Mickey Mouse, and Care Bears grin down at the crowd. It's as if you were a shrunken man lost in a child's toy box.

Over on the right, whoosh, an immense Diet Coke can rises into view. Behind you, look! A King Kong-sized hamburger pops up into the air. The crowd erupts into cheers and applause. Slowly, gracefully, up they go. Hundreds of floating colorful shapes fill the azure sky. The swirling colors slowly rotate in the sun. Suspended below, wind-borne craft in golden wicker baskets, pilots and passengers wave to the crowd and drop candy and sparkling confetti. The first one is airborne.

The loudspeakers ring out cheerfully, "Welcome, everyone, to the 21st Annual Albuquerque Balloon Fiesta! All thoughts of a warm bed vanish.

Albuquerque International Balloon Fiesta



Graphic by Teresa Ligon

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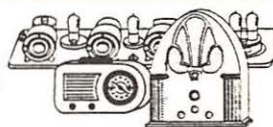
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ALBUQUERQUE INTERNATIONAL BALLOON FIESTA FREQUENCIES

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Balloon Adventure
151.625, 123.300, 123.500
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151.625, 464.550
Balloon Media Ltd.
151.625
Balloon Productions Inc.
123.300
Balloonatics inc.
151.625
Balloons Aloft
123.300, 123.500
Flights of Fantasy
464.500, 464.550
Hot Air Corps.
123.300, 123.500
Hot Air Hangups
151.625
Hot Air Inc.
151.625
Wicker Basket Balloons
151.655
Albuquerque Center ATC
127.850, 134.750, 126.450,
133.050, 124.700, 351.700,
363.200, 319.900, 269.400
Albuquerque Int. Airport
Tower: 118.300, 257.800
Grnd cntrl : 121.900, 348.600
CLNC DEL: 119.200, 385.600
Federal Aviation Administration
Albuquerque : 165.5375, 165.7375
166.175
Kirtland AFB Albuquerque
APP/DEP: 301.550/ 124.400,
316.600/127.400, 317.600,
121.100 Grnd cntrl: 348.600/
121.900

Source: Bob Grove

Graphic by Steve Douglass

Held annually during the first and second weekends of October, the nine-day Albuquerque International Balloon Fiesta attracts hundreds of thousands of spectators. The skies are filled with balloonists all vying for prizes during the biggest balloon rally in the world. Appropriately nicknamed "The Big One," the balloon fiesta is on equal par with the Super Bowl or the Tour de France. An international event, the fiesta attracts balloonists from all over the globe. Even the Soviet team has been in attendance.

A Mardi Gras atmosphere prevails and there is fun for even the most serious competitor. Parades, marching bands and skydivers greet the crowd every morning at the balloon grounds. Balloonists strolling around in all manner of costume add to a holiday spirit. Along the sidelines, vendors selling everything from balloon souvenirs to breakfast pedal their wares to a smiling crowd.

The favorite pastime seems to be balloon pin trading. Scores of colorful enameled pins are on display for sale or trade. Balloon fiesta veterans scour the booths looking for that rare collector's pin, such as a Japanese pin featuring a smiling oriental pilot with battery-powered twinkling eyes. Other hot items are fiesta jackets, T-shirts, and embroidered balloon patches.

Scanning the Skies

As fun as the balloon festival is, for radio monitors it can be particularly exciting. Bring your portable scanner, plenty of batteries, and an earphone (it gets quite noisy).

The majority of balloon communications take place on the VHF air band. 123.45 MHz seems the popular choice. Other frequencies to check are 123.1, 123.3, 122.800, 122.900, 122.950 and 123.500 MHz. Several balloonists also use the CB channels, with channel 14 being the busiest.

There are even balloonists using cellular phones to communicate with their chase crews. One great way to learn what frequencies are in use is to sign up to be on a balloon chase crew. Crews are always needed to supply ground support for balloonists and some will reward you with a pin, a jacket, or even a free balloon ride!

There are many other frequencies in use. Because of the size of the event, the news media are there en masse. In past events, the Albuquerque Civil Air Patrol could be heard on 148.150 providing air coordination for the fiesta as could the Albuquerque police providing security on 154.830 MHz. Fire and rescue crews were standing by on 153.890 and 155.175 MHz. New Mexico Highway Patrol provided traffic control on 154.920 and 155.580. Even the U.S. Army Golden Knights were there on 130.950.

What to Anticipate

On weekends, mass ascensions take place. A mass ascension is when all the balloonists take off at once. The sight of over 300 floating colorful balloons forming a celestial blanket over the city is an unforgettable sight. But so you won't forget, bring your camera. Even if one were to stand in just one spot during the mass ascension, the picture-taking possibilities would seem endless. An ever changing vista of color unfolds above the



Close encounter. A special shape balloon, a huge flying witch, eyes another balloonist up close and personal. Careful coordination via radio is essential to insure safety.

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- Manual and demo disk \$15

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crowd. It is no wonder that the fiesta is the most photographed sporting event in the world. Thousands of shutters click all at once. Rank amateurs and high-paid professionals shoot side by side and never seem to have enough film. But don't worry, there are plenty of booths selling more.

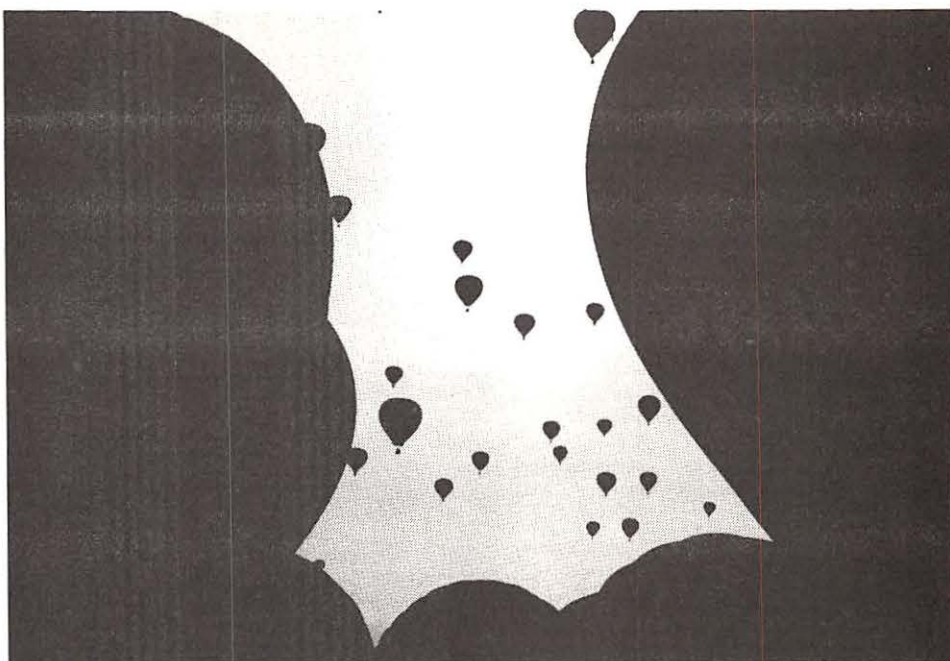
Although the mass ascension is the most popular, there are other events to enjoy. After a day of browsing through the quaint shops of "Old Town" in southwest Albuquerque, visitors end the day at the fiesta grounds watching the Balloon Glow. Taking place at sunset, the Balloon Glow is the perfect way to top off the evening. Balloons are tethered and orange propane flames from the burners fill the balloons with a warm light. From the air it looks like a field of gigantic twinkling Christmas ornaments. Strolling among the balloons at twilight stimulates one's senses and leaves participants and spectators alike with a warm afterglow of contentment.

Other events included in the rally are "The Key Grab," "Coyote and Roadrunner," and the "Balloon Fiesta Drop." The Key Grab is the most fun to watch. Balloonists launch from a predetermined site over a mile away and try and maneuver close enough to a set of car keys attached to a 30 foot pole. The balloonists must catch a wind that will take them over the contest site. This takes good piloting skills, great timing, and intense concentration. Watching balloonists desperately trying to reach the keys from a moving balloon is exciting and comical, but it's worth it to the contestants! The winner of the keys also receives the new car that goes with them!

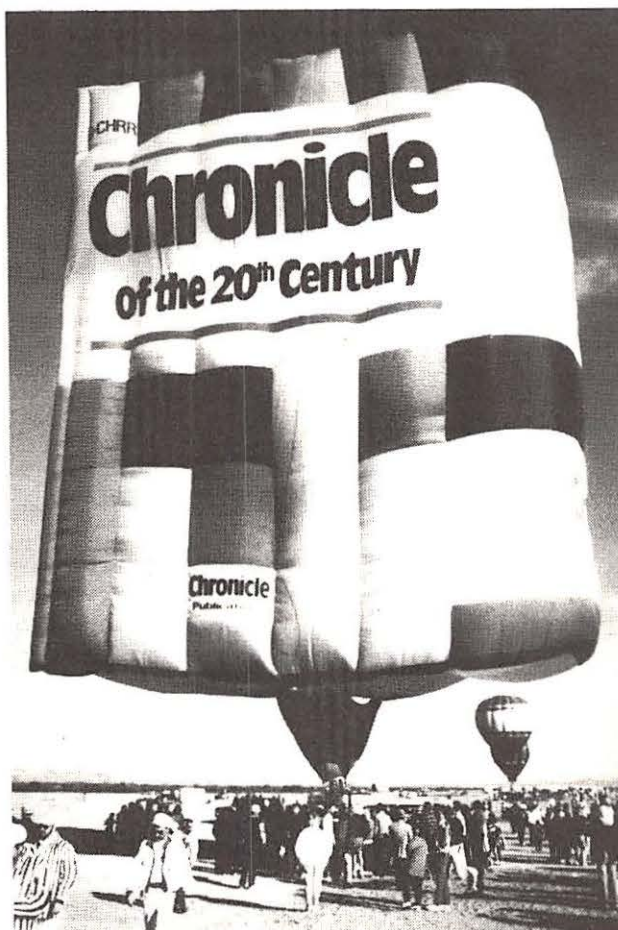
In the Coyote and Roadrunner competition, the Coyotes (a pack of 70 balloons) chase a single balloon (the Roadrunner). The point is to touch down as close as possible to the Roadrunner. The Roadrunner will have a head start and can use any trick winds available to prevent the Coyotes from landing close to him. The Roadrunner can even fake a landing to throw the Coyotes off, but the Coyotes are determined to catch the Roadrunner, and eventually one lucky balloonist will.

The Balloon Fiesta Drop, laughingly known as the B.F.D. event, is an exciting game of skill. Here the object is to drop a bag of birdseed on a target at the center of the balloon grounds. Trying to hit a small spot on Mother Earth from 200 feet up can be quite challenging. Sometimes the contest is modified, and the object is to throw a hula hoop around a pole or a beach ball into a pool. It all takes tricky flying.

So you see, excitement abounds at the Albuquerque International Balloon Fiesta. The Big One is exactly that. It's a friendly, folksy international event that is photogenic and a thrill for all. So bring your camera, plenty of film, and don't forget to bring your scanner to this year's annual fiesta!



Mass Ascension. Silhouetted against a morning sky, over three hundred balloons take flight at once on the weekends during the festivities.



Ready for take off. The pilots of the "Chronicle" balloon communicated with ground crews on 123.45 MHz.

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Shortwave's Hottest Broadcast Frequencies

By Charles Sorrell

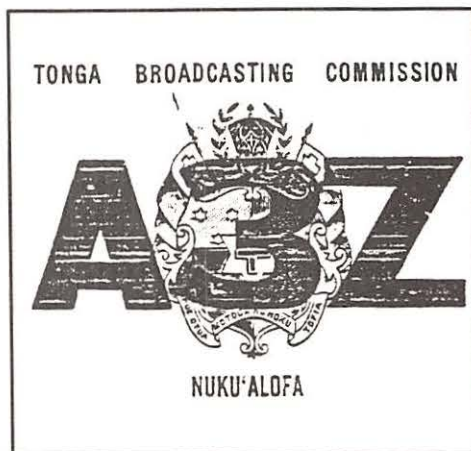
Sometimes it seems the other half of the shortwave listening hobby is having all the fun. Ham band monitors tune in on DXpeditions making contacts from some flyspeck in the middle of the ocean, ute fans are copying military traffic and press printouts on radioteletype.

Well, I'm here to tell you that we shortwave broadcast monitors don't need to develop any sort of inferiority complex whatever, because there are all kinds of interesting challenges the shortwave broadcast DXer and SWL can go after. There's always a great mix of rare DX targets, pirate and clandestine stations, and program content from the international broadcasters tied right into today's hottest news stories and the shifting international scene.

Need convincing? Here's more than enough reasons that will prove SWBC fans can always find plenty of interesting items on the listening menu.

3935 — This spot contains a choice piece of DX from the South Pacific. ZLXA, Print Disabled Radio, broadcasts from Levin, New Zealand, using only one kilowatt. Yet it's been picked up by a few North American DXers, though admittedly most have been located in the western half of the continent. ZLXA operates daily from 2100 to 1100, a schedule that puts it on the air at the most opportune late night/early morning reception times here for stations in the Pacific. There is, of course, often plenty of ham QRM to contend with. If you do hear the station, reports go to P.O. Box 360, Levin, New Zealand.

5025 — Another piece of rare DX is the Bhutan Broadcasting Service at Thimphu, Bhutan, high in the Himalayas. Winter seems to be the best time to log this one which, when it is logged, usually pops through in the 1100-1300 time period. You have to listen hard and listen quick, though, as the signal usually doesn't hold up for long. There's a good news/bad news game to play with Bhutan. The good news is that the station has



It's a very fortunate DXer who can hear and the QSL AZ3, the Tonga Broadcasting Commission, on 5030.

recently put a new 50 kW transmitter on the air, a 10-fold increase from what it was using last year. The bad news? The station hasn't sent anyone a QSL in several years now.

5030 — Still another nice piece of DX, if you can get it, is AZ3, the Tonga Broadcasting Commission. So far it has been heard by just a handful of North American listeners, despite uncountable attempts. AZ3 has the standard requisites for an elusive target: low power and long distance. One positive note, Radio Impacto, which used to occupy this spot, covering much of the Tonga reception window, is now gone. Tonga's schedule runs to 1000 but most of those who've heard it report reception in the 0700-0900 period.

5535 — Fans of Latin American DXing have already been checking this frequency for a fairly new and very out-of-band Colombian, something there aren't many of. After a couple of ID at-

tempts that were a bit off the mark, the actual station name turned out to be Radio Ecos Celestiales, a religious operation run by an as yet unspecified Protestant group. It runs a split broadcast schedule of 0945 to 1200 and 0145 to 0400 close, all Spanish. The station is located in Medellin and can be written to at Apartado Aereo 8447.

5950 — This could be a hot spot for SWBC DXers who have been active for just a few years and thus haven't seen any activity out of Guyana until now. The Guyana Broadcasting Corporation has a long shortwave history, operating for many years as Radio Demerara back when Guyana was British Guiana. There've been a couple of long gaps during recent years and one such has just concluded. The GBC is being heard, albeit with some difficulty, on 5950 around 0800. Usual sign-off time is 0830. There's often a lot of QRM to contend with in this area.

6005 — German reunification brought an end to East Germany and its Radio Berlin International. RIAS (Radio in the American Sector), which operates on this frequency, is believed not to have much of a future in a unified, de-communized Germany, at least not in its present form. So, if you don't have this one in your log it would be a good idea to get it while you can. Although RIAS runs 24 hours a day on this frequency we obviously don't have round-the-clock access to the signal. Best time to catch this is during the evenings, sometimes early, sometimes later. There's a lot of QRM and the interference pattern changes, so look for a window.

6260-6280 — There's a clandestine radio war going on in this vicinity almost nightly. This frequency range, even up to 6300 and higher, has for some time been used by the Colombian clandestine Radio Patria Libre, normally running from around 0030-0115, also mornings from

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about 1130-1220. The station is run by the National Liberation Army (ELN)—one of just two guerrilla groups still active in Colombia. Patria Libre jumps around during its transmission: 6260, 6270, 6280, etc. Another Colombian is also on at about the same time. It IDs as Del Pueblo Responde and seems directed specifically against Patria Libre, urging the ELN to call off their armed efforts against the government. Whether you speak Spanish or not, this makes for some very interesting monitoring.

6278 variable — Believe it or not, a short-wave pirate from the Soviet Union has recently been reported here. Riot Radio, apparently located in the Moscow area, has been reported as active with so-called test broadcasts to Europe and the USA. It's been heard in the Soviet Union signing off on different days at 0123 and 0214 and giving an address of Box 555, Moscow 119633. Of course, there's no telling how long this will last before it is found and shut down. That may have happened already. Still, the idea that Soviet pirate stations are beginning to show up on short-wave is an eye-opener.

6399 — Just about the time we were hearing the word that FMLN (Farabundo Marti National

Liberation Front) stations, Radio Farabundo Marti and Radio Venceremos, had left shortwave and were restricting themselves to broadcasting on local El Salvador FM channels, comes the short-wave return of Radio Venceremos. The station has been observed a few times around 0400, but suffering QRM on occasion from a utility station on 6400.

6907 — Here is another oddball frequency with some recent new action. This spot is now home to Africa Dos Mill (Africa 2000), coming from Equatorial Guinea. Reportedly this is a joint effort by Equatorial Guinea and Spain and is running around 10 kilowatts. The initial schedule is reported to be 1300 to 2130 close. Now that the days are getting shorter, DXers in the east and midwest should have pretty good shots at this one. The station is believed to be at Malabo.

7275 — One of the more unusual shortwave broadcast targets out there right now is ELBC. This isn't the same ELBC that existed before the Liberian civil war, however. It's a station run by the group of African nations maintaining the peace in that country. ELBC has been heard by quite a few North American DXers. It's currently being noted from its sign-on time at 0659, in

English.

7410 — Back in May, the white supremacist pirate — some say it's a clandestine — Voice of Tomorrow made one of its rare appearances on this frequency and on 6240. The Voice of Tomorrow seems to activate its transmitter only once or twice a year so it may be due to show again before too long. Once you hear it you can't forget the chilling wolf cry and drum interval signal. 15040 is another frequency sometimes put to use. You might want to try and put a telephone tip network together to pass along an alert if this one shows up, because it doesn't happen very often.

7415 — This frequency, above all others, is the spot to "hang out" if you want to hear pirate stations. The number of pirates which are using or have used this frequency must be into the several dozens by now. Pick any hour(s), especially on weekends and holidays, when this band is open and just monitor the channel. Sooner or later, there'll be some action.

8300 — This entry is a bit more of a utility station than a broadcaster, but "broadcasting" is part of its name, so we'll stretch things a bit. The New Star Broadcasting Station is widely heard in North America during our morning hours, 1200-

1400, though not continuous. The transmissions are made up largely of Chinese numbers, said to be telegrams directed to recipients in Japan. But part of the transmissions are also said to include anti-Beijing talks. The actual ID is reported as the Channel Four Broadcasting Station, which is perhaps a reference to the several networks New Star is reported to have active on various other frequencies. The broadcasts are announced as being from Taipei, Taiwan.

11620 — India is a country with a growing list of serious problems: the assassination of Rajiv Ghandi earlier this year, separatist efforts in Kashmir, growing ethnic unrest, and so on. Check All India Radio for their coverage. Unfortunately, though, we all too often get only marginal reception of AIR, though the station is making technical improvements and adding new, higher power transmitters, which should help down the road. This frequency is active at 1845-1945 and 2045-2230 with English to Europe.

11735 — People have been predicting the breakup of Yugoslavia ever since Tito died back in 1980. At the moment it looks like those predictions may be coming to pass, with Slovenia and Croatia having declared independence and

tanks moving on the highways. Radio Yugoslavia is thus a hot station to tune in these days. There's an English broadcast directed to North America daily at 0000-0045 on this frequency.

12255 — Logging a European pirate station is a rare event for most North American DXers. But better high frequency propagation has helped a few of these signals do a better job of crossing the Atlantic, particularly when using 11 MHz and higher. One such is Radio Fax, based in Northern Ireland, which has been heard by several DXers around 0200 and 0300, usually playing pop tunes from the '50s, '60s and '70s. It's surely worth a try, particularly on the weekends. Direct reception reports to The Fourgecraneleigh, Surrey GU6 7BG, England.

13605 — We all know what the usual American FM station sounds like. But how about in the United Arab Emirates? Part of the schedule of the Voice of the UAE in Abu Dhabi consists of a relay of local FM station Capital Radio. You can hear it from 2230-2300 on this frequency, as well as 17855. The FM station is well aware it is reaching an international audience and will verify reception reports sent direct: P.O. Box 63, Abu Dhabi, United Arab Emirates.

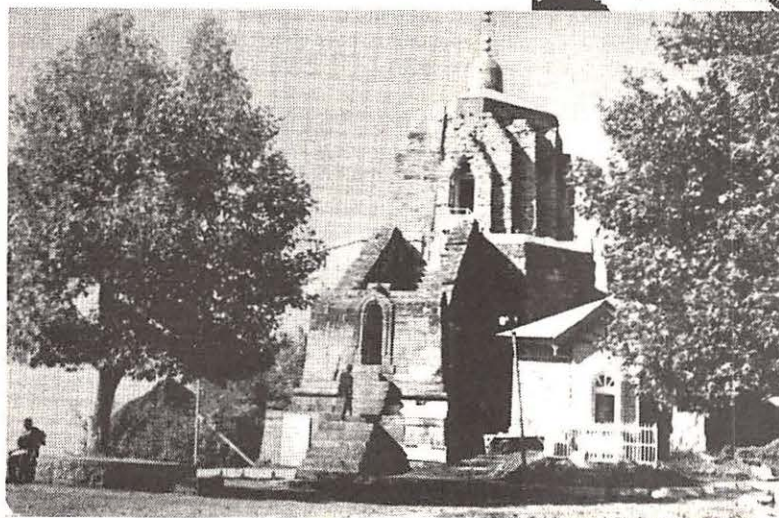
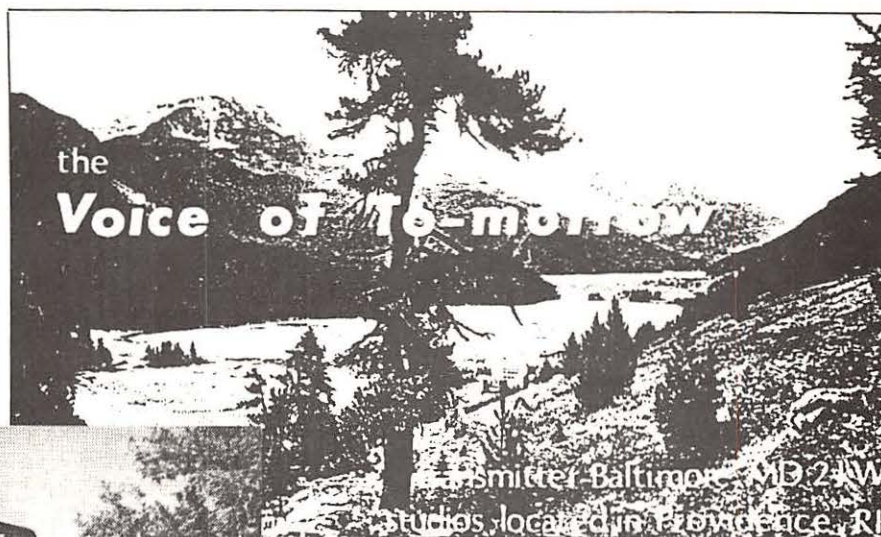
15050 — Seeing increased use by pirates who want to get out with their signal is this spot, especially during the daytime hours. Several stations have shown up here over the past year or so: Radio Free Massachusetts, Voice of the Purple Pumpkin, Radio USA and others. This is a good frequency to check periodically during the daytime hours, especially on weekends.

17950 — This is the most recent frequency for the Voice of the Iraqi Resistance, formerly the Voice of Free Iraq, widely believed to be CIA-backed, if not actually operated. The station also uses 9570 and 15600/15605. The station's schedule seems to be undergoing a realignment but it is usually reported from around 2000 to sign off around 2300. Yours truly has noted tones and open carriers on 17950 from as early as 1800.

While it's always fun to just fish around on the shortwave bands, it's usually more profitable to zero in on some specific spots which may provide either a top DX logging or some interesting program listening. We've provided a nice selection in both categories here. Now all you have to do is try 'em on for size.



Right: The Voice of Tomorrow made one of its rare shortwave appearances earlier this year. Below: News and current affairs programs from All India Radio deal with that country's many problems.



Be a Bandscan Contributor

Want to help write a feature article? Several folks tried Charles Sorrell's "40 Meters at 0100" bandscan (Feb '91 issue) for themselves. It was gratifying to know readers responded to the challenge, but there was little way we could make use of the information sent in.

This time, Sorrell solicits your input before the article is written, so that your experiences can be incorporated into his findings. The band to be surveyed is 9700 to 10,000 kHz between the hours of 0100-0300. Your survey results or any further questions should be directed to Charles Sorrell, c/o MT, P.O. Box 98, Brasstown, NC 28902. Deadline for the surveys: November 15th.

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Scanner Action at the Football Stadium

By Wayne Heinen

Located south of the city of Buffalo, N.Y., the town of Orchard Park is a quiet bedroom community with a population of 30,000. During the summer and fall the quiet disappears on the west side of town. Orchard Park's national claim to fame is that it's the home of Rich Stadium and the Buffalo Bills.

I had often wondered what it was like for the police during the Bills games and during the numerous special events, so I arranged an interview with the chief of the Orchard Park Police Department. Since I grew up in Orchard Park, I was no stranger to Chief Robert C. Henning. However, this meeting was quite different from the dealings we had when I was a teenager and the chief was a lieutenant.

Traffic and crowd control is the responsibility of both the Erie County sheriff and the OPPD. Communications between the two agencies are carried on the inter-county channel 155.580 MHz.

Two types of events occur at Rich Stadium: football and rock concerts. Of the two, Chief Henning considers football the easiest. "In terms of duration, a football game lasts seven to eight hours. People come two hours before and leave two hours after. Concerts on the other hand, have people arriving a day or two before and leaving a day after. We have many more calls spanning a longer period of time during a concert."

The sheriff's department maintains a Stadium Command on 460.400 MHz. It is responsible for all traffic control on the highways leading to the stadium and both traffic and crowd control in the parking lots. The coordination of parking includes a helicopter which looks for problems on the traffic routes as well as alerting the Stadium Command to parking lots which still have available parking spaces. Stadium Command then advises local AM and FM stations of the available parking at the stadium. Hopefully, this helps the fans get to the available parking by the best routes and keep traffic jams to a minimum.

Stadium Command communications may include anything from trying to find a lost child

*Rich Stadium —
Home of the
Buffalo Bills.*

to looking for someone to contact the Goodyear Blimp to warn them of an impending thunderstorm. The internal security at the stadium is handled by the Buffalo Bills and an outside contract security firm which they hire. This firm maintains a nonradio liaison with the sheriff's Stadium Command.

Orchard Park Fire Rescue is responsible for all medical emergencies which occur on the highways and in the parking lots surrounding the stadium. The night I was scanning, rescue and a local ambulance were dispatched to the Southwest parking lot where a man fell from a vehicle. They were also called to the scene of an accident or two. The brunt of the medic duty falls to the Windom Volunteer Fire Station, since Rich Stadium is located within the Windom station's district. The other two volunteer fire stations: Orchard Park and Hillcrest, are always prepared to back up Windom when needed.

OPPD is responsible for all incidents surrounding the stadium. Chief Henning has a minimum of four two-man cars stationed around the stadium during an event, whose duties include all accident and criminal investigations. Car to car communications for OPPD are handled on 155.780 MHz. OPPD dispatch is found on 155.190. One never-ending headache is illegally parked cars in subdivisions surrounding the stadium. Even if the violators are discovered by

the sheriff, it is OPPD which must ticket and arrange towing of the vehicles.

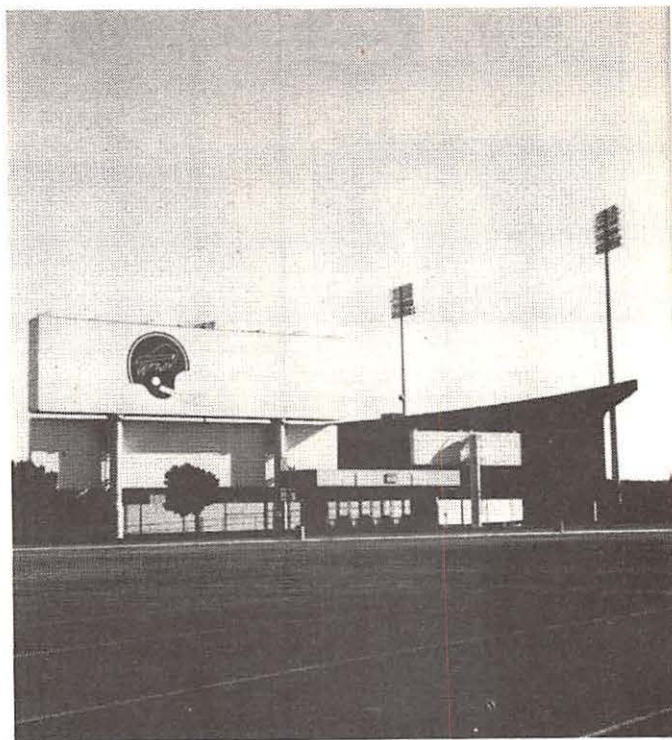
The night I was there, OPPD was "invited" to assist the sheriff in one of the parking lots. Apparently an ambulance driver had locked his keys in his ambulance and a "slim jim" was needed. OPPD also supplies the sheriff with phone numbers of local locksmiths to assist fans who've made the same mistake.

Once Inside:

The team communications were interesting in that most of it appeared to be the various coaches commenting on the plays. The jargon used was in some ways difficult to understand. It is probably intentional to keep the opposing team from knowing all that's being said. If I could monitor it, so could they. The easiest communications to verify were player substitutions being relayed from a coach to an assistant. The numbers of the players going on and coming off the field matched up with what I'd heard.

The wireless mike communications were simply the officials announcing penalties through the PA system. Nothing very exciting there.

During the game you'll hear the normal crowd control communications on the security channels. Internal stadium security is a sensitive subject and is not information that officials will



Southtowns Citizen

disclose. Security has the job of patrolling the stadium interior and quieting the sometimes overzealous fans. There was also the usual lost-child relays and a few maintenance calls for cleanup and plumbing disorders in the rest rooms.

Since I visited Buffalo, both the vendor and security company at the stadium have changed. This situation occurs so frequently the OPPD doesn't even know who has the security contract half the time. Currently, security is handled by Chase Security and the concessions are operated by Ogden Foods. However, no frequencies are found to be licensed under the name of Chase Security, so more sleuthing is required.

If you encounter the same difficulties where you live, you can try using a frequency counter. If you can get close to a security officer when he's transmitting, a good unit like the Optoelectronics units can give you the frequency. You can also use your search function to scan the business bands where most security companies have their licensed frequencies. See the chart of the common ranges. Many companies use the itinerant frequencies listed in the chart.

When the Crowd Gets Rowdy

The scanning activity is greatest as the crowds are arriving and departing the event. Chief Henning has observed the crowds for 18 years. "I would much rather the Bills have a win than a loss. The fans are much better behaved when their spirits

Rich Stadium — Buffalo, N.Y.

| | |
|-------------------|----------|
| Buffalo Bills | 154.600 |
| Buffalo Bills | *184.400 |
| Buffalo Bills | 467.850 |
| Buffalo Bills | 467.000 |
| Inter-county | 155.580 |
| Orchard Park VFD | 154.145 |
| Orchard Park PD | 155.780 |
| Orchard Park PD | 155.190 |
| Stadium Command | 460.400 |
| (* wireless mike) | |

are boosted by a win. Lately, the Bills have stopped selling alcohol during the fourth quarter, and they do not sell it at all on Monday night games. This has had a very good effect during our post game crowd control.

"Rock concerts at the stadium present a different problem," the

chief continued. "Drug use among the teenage audience causes far more medical emergencies. Kids freaked out on acid are difficult to handle and sometimes have to be restrained for their own protection. The problems of trespassing occur at both events, but the problem of kids camping out for a few days means a lot more work for us."

At the end of an event the town court is very busy. By agreement, the sheriff's transportation division brings all of those arrested at the event to the town hall. There they are booked and either released on bond or transported to the Erie County Holding Center. "If we had to transport prisoners to the holding center ourselves, we would have to have far more men on duty," said the chief. "Our 30 man department is fine for a town of 30,000. Special events at Rich Stadium cannot be policed by us alone." These transportation communications are on the inter-county channel, 155.580 MHz.

In your local area you may be able to find the frequencies used for the activities surrounding a stadium event by checking various frequencies from a source like *Police Call* or various *MT* columns. Many designated police or local government channels are reserved for mobile



Wayne Heinen

Orchard Park Police Chief Robert C. Henning

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| Blue | 154.570 |
| Green | 154.600 |
| Brown | 464.500 |
| Yellow | 464.550 |

Frequency ranges to search

151.625 to 151.200
 461.000 to 462.200
 463.200 to 465.000
 467.750 to 467.925

command operations and are only active during special events. If you live in an area where a joint venture stadium exists, try your local inter-agency frequencies for starters.

Under the 1972 lease agreement between Erie County and the Buffalo Bills, not one cent was allotted to the town of Orchard Park for the added work load. The taxpayers of the town are the ones who pay the extra manpower that is expended by the OPPD, for the extra burdens placed on the highway department for setting barricades at various town streets and the expenses of the town court in handling those arrested.

About 20 times a year this small suburban town plays host to 2-1/2 times its population. With the current agreement the Erie County Sheriff and OPPD are charged with handling the stadium to the benefit of the entire metropolitan

area. Chief Henning commented on his 18 years of dealing with the stadium. "If we received even a nickel from the sale of each ticket, that would be \$4,000. That would help defray the extra costs to the town. On the other hand, we've benefitted from Rich Stadium and the Buffalo Bills. Businesses near the stadium have increased revenue. Many people with larger lots allow cars to park on their property and make extra income. The national publicity Orchard Park has received from being the home of the Buffalo Bills has certainly helped our town."

The next time you are off to a stadium event in your town, take your scanner. Those extra hours in traffic and the times when your team isn't doing so great can turn into a very rewarding experience.

mt

A variety of frequencies are believed to carry NFL communications similar to those monitored at Rich Stadium. Many listed frequencies are the itinerant Color Dot frequencies, so you'll need to be close to hear them. If you live anywhere near any of these, you may wish to check them out, especially those listed to the NFL.

FOOTBALL FREQUENCIES

| Organization | Frequency | Organization | Frequency |
|--------------------------|------------------|--------------------------|------------------|
| Chicago Bears | 151.625 | National Football League | 464.3625 |
| Chicago Bears | *180.600 | National Football League | 466.4125 |
| Cincinnati Bengals | *183.000 | National Football League | 466.7625 |
| Cleveland Browns | 151.685 | National Football League | 466.8375 |
| Cleveland Browns | *178.000 | National Football League | 466.8875 |
| Dallas Cowboys | *175.400 | New England Patriots | 151.625 |
| Denver Broncos | *180.800 | New England Patriots | 154.570 |
| Detroit Lions | 462.675 | New England Patriots | 154.625 |
| Detroit Lions | 462.700 | New England Patriots | 464.425 |
| Detroit Lions | *183.000 | New England Patriots | *199.400 |
| Green Bay Packers | 151.625 | New Orleans Saints | 453.425 |
| Green Bay Packers | *181.800 | New Orleans Saints | 453.775 |
| Houston Oilers | *175.800 | New Orleans Saints | *179.500 |
| Kansas City Chiefs | 464.775 | New York Giants | 154.540 |
| Kansas City Chiefs | 469.775 | New York Giants | *181.400 |
| Kansas City Chiefs | *181.400 | New York Jets | 151.625 |
| Los Angeles Raiders | 453.950 | New York Jets | 151.835 |
| Los Angeles Raiders | *181.800 | New York Jets | *183.000 |
| Los Angeles Rams | *183.200 | NFL Films | 153.020 |
| Miami Dolphins | 150.980 | Philadelphia Eagles | 151.775 |
| Miami Dolphins | 151.625 | Philadelphia Eagles | 154.570 |
| Minnesota Vikings | 151.955 | Philadelphia Eagles | 464.950 |
| Minnesota Vikings | 461.050 | Philadelphia Eagles | *184.000 |
| Minnesota Vikings | 464.375 | Pittsburgh Steelers | 151.625 |
| National Football League | 151.625 | Pittsburgh Steelers | 467.750 |
| National Football League | 457.5625 | Pittsburgh Steelers | *184.000 |
| National Football League | 461.2375 | San Diego Chargers | 154.570 |
| National Football League | 461.3125 | San Diego Chargers | 461.6375 |
| National Football League | 461.3375 | San Francisco 49ers | 151.775 |
| National Football League | 461.4625 | Seattle Mariners | *182.300 |
| National Football League | 462.8125 | St. Louis Cardinals | 464.775 |
| National Football League | 463.4875 | St. Louis Cardinals | 469.500 |
| National Football League | 463.5375 | Tampa Bay Buccaneers | 151.775 |
| National Football League | 463.7125 | Washington Redskins | 153.980 |
| National Football League | 464.1125 | Washington Redskins | *181.000 |
| National Football League | 464.2625 | | |

*wireless mike

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Lockheed - California Company

A Division of Lockheed Corporation
Burbank, California 91520

Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

| FREQUENCY (MHz) | RELATIVE GAIN (dB) | RELATIVE POWER GAIN (%) |
|-----------------|--------------------|-------------------------|
| 26.965 | 1.30 | 35 |
| 27.015 | 1.30 | 35 |
| 27.065 | 1.45 | 40 |
| 27.115 | 1.60 | 45 |
| 27.165 | 1.50 | 41 |
| 27.215 | 1.60 | 45 |
| 27.265 | 1.75 | 50 |
| 27.315 | 1.95 | 57 |
| 27.365 | 2.00 | 58 |
| 27.405 | 2.00 | 58 |

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Turning Up The Volume on Shortwave Radio

by Jeff Chanowitz

What should be the future direction of international broadcasting? This question was addressed by over 175 members of the world radio community who converged on Washington D.C. last May to examine the state of international broadcasting at a Center for Strategic and International Studies sponsored symposium. Entitled "Turning Up the Volume On International Broadcasting," the resulting discussions gave insights into the rapidly changing present and future of shortwave broadcasting.

"We wanted to bring international radio and broadcasting into the limelight," commented visiting international telecommunications fellow

Michael O'Hara Garcia. Garcia was the project director for the symposium and a member of the Center for Strategic and International Studies, an international think tank that advances understanding of emerging world issues in the areas of politics, business, and economics.

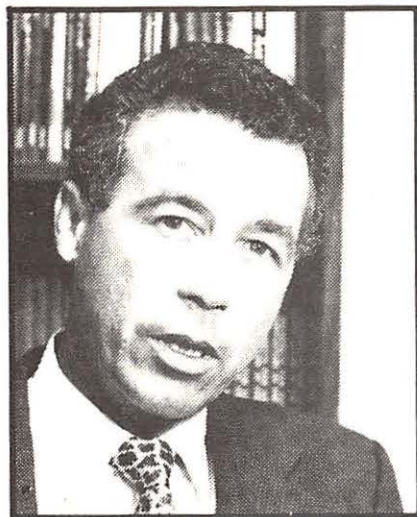
The symposium attracted such industry insiders as Hirishi Iwamoto, the director of NHK, Radio Japan; Denis Louche, director of development at Radio France International; Anatoly Tupikin, First Deputy Chairman of Radio Moscow; John Tusa, director of BBC World Service; Robert Coonrod, deputy director of VOA; Bill Plante, state department correspondent of CBS

News; and countless others.

The one-day event consisted of five panels that examined State Broadcasters — New Programs and New Politics; Broadcast Technologies — The Future Is Now; Private International Radio Broadcasters — A Global Market Place?; Audience Research and Market Realities — Who Is Listening and Why?; and The Impact Of the Fall Of Communism and the Persian Gulf War. Each panel consisted of some of the top people in the fields of audience research, programming, and reporting, resulting in candid discussions that shed significant light on the direction of international broadcasting.



World radio community members discuss state broadcasters' response to the politics. Seated from left to right are: John Tusa, Director of World Service, BBC; Anatoly Tupikin, First Deputy Chairman, Radio Moscow; Eugene Pell, President, Radio Free Europe/Radio Liberty; Denis Louche, Director of Development, Radio France Int'l; Hirashi Iwamoto, Director General, Radio Japan NHK; Alan Familiant, Acting Director, Radio Canada Int'l; Robert Coonrod, Deputy Director, VOA; Bill Plante, State Department Correspondent, CBS.



Michael O'Hara Garcia

MT talked with Michael Garcia about the issues affecting international broadcasting. He perceived the main theme that emerged during panel discussions to be the increasing amount of change in the political, economic, and technological areas which have been instrumental in shaping the broadcasting environment.

Garcia commented, "When you consider that the large majority of the world's population in the year 2000 will be under 21... if shortwave can't deliver quality programming and signals, then it's going to be hard to attract listeners." In-band technology, which enables shortwave broadcasters to embed a digital signal within an HF transmission, is just one of the technological advances that could enable shortwave broadcasters to provide high-fidelity signals that can successfully compete against FM stations.

Other new technological breakthroughs are enabling broadcasters to redefine international broadcasting. Today satellite technology presents broadcasters with a new way for listeners to receive programming. In developed countries, people can now receive satellite transmissions directly on their TVRO dishes (Television Receive Only) or indirectly on cable via the C-Span Audio Network (in the U.S. only). These new technologies are not threatening HF transmissions, but are providing shortwave broadcasters with additional ways to deliver their programming.

Garcia commented that international broadcasting is now more than just shortwave transmissions, stating, "We don't want to think of international broadcast as just HF." He told of an experience that reinforced this view. While on patrol in the desert as an observer with the multinational forces in Sinai, Egypt, Garcia was surprised to find the BBC World Service, being broadcast on AM, from a radio station in Cyprus.

Competition in Programming, Not Technology

"The competition for international radio is local radio that is reliable and truthful," Garcia remarked. He added, "Most broadcasters (international) don't compete with each other." Garcia recalled an interview with Vietnamese boat people. When asked which international broadcaster they listened to, most didn't listen to one station, but would tune in to several international services

and compare each station for the accuracy of its news.

While interviewing the Vietnamese, Garcia recalled that they expressed a preference for localized news coverage. The VOA regionalizes its news programming; Consequently, the VOA was the favorite for the Vietnamese surveyed.

On the subject of audience preferences, Garcia mentioned that symposium members agreed that news programming is the primary draw for listeners. In the developed world, the audience

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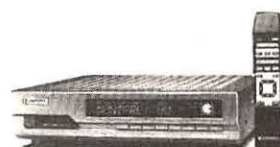


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"The people who say that shortwave is going to die are like the people who said the movies would die when TV came. It just is not going to happen."

tends to be highly educated. What they desire is to receive more information and different view points. However, in developing countries where the media is controlled, the desire is for truthful and accurate information. As the population of the developing world increases, it seems likely that more of an emphasis will be put on programming for their needs.

To ensure that new programming matches the desires of listeners, Garcia also foresees the emergence of specialists who will advise broadcasters on the most effective programming. Like the format doctors in the U.S., these new specialists will help radio stations that fail to attract listeners. Also, because global audiences are becoming younger, the non-news programming will have to be made attractive enough to compete with other listening alternatives. Garcia commented that to attract listeners future programmers will have to put a greater emphasis on music formats.

This has in fact already happened at the Voice of America. During the 1980s the VOA designed a highly-popular Top 40 youth-oriented music service that beamed its signal to Western Europe. The programming featured music, but also included news and commentary that are typical of shortwave broadcasts. Despite VOA's experience, many broadcasters have not responded to cultural and demographic changes. Garcia remarked, "There are a lot of people who are sticking to their old ways of doing things. Since the fall of communism, more broadcasters are looking for new formats and ideas. It's a time of transition."

From a political perspective, the fall of communism and the Gulf War have spotlighted shortwave's usefulness. During the war, the tremendous impact of instantaneous communication was made apparent as audiences heard and watched live reports of Scud attacks on Israeli and Saudi Arabian cities.

"Radio is the fastest and most effective way to receive information during international emergencies," Garcia commented. He cited the large demand for shortwave radios during the crisis as an indicator of the usefulness of international broadcasting in gathering the fastest and most diverse amount of information sources. Even CNN's television broadcasts were only audio with slides of the Baghdad hotel placed in front."

"It was generally agreed among our panelists that the fall of communism has changed the U.S. government's view of international radio," Garcia commented. With communism in retreat, the

objectives of international broadcast services are now being reevaluated. Last May, President Bush appointed a task force to reexamine the most effective way to use the U.S.'s resources for international broadcasting in the wake of the changing international political situation. The task force findings, which will be released in December, are likely to be a key determinant for the future of VOA and Radio Free Europe/Radio Liberty.

Making More of a Good Thing

In the wake of the closing of Radio Canada International and the drastic cutbacks at Kol Israel, the ending of the cold war seems to have signaled a trend toward fewer shortwave stations. Garcia disagrees. He described the reasons for the cutbacks largely resulting from "nonvisionary government ministers who are europhiles."

Says Garcia, "The fall of communism has led many to believe they don't need it (shortwave broadcasting) as a source of communication. They don't see that people in India and Fiji will have an impact on their country. In the short run they might not, but in the long run they will."

Additionally, despite doubts from many of the symposium panelists, Garcia believes that the gaps left by government broadcasters who end transmissions will be taken up by private broadcasters. He added that the major factors that have inhibited commercial broadcasting in the past are now changing. The development of in-band and digital systems, which have increased sound fidelity, combined with the increasing acceptance of credit cards as an international means of payment, will make advertisers more likely to buy ad time on international stations. Garcia remarked, "(In the future) you are going to see people beyond religious broadcasters entering the market."

On a positive note, the broadcasters at the symposium did agree that jamming is becoming a thing of the past. Garcia concluded, "Jamming is very expensive and counter-productive . . . disinformation is a more effective means than jamming." Broadcasters who have incorporated jamming and traditional forms of propaganda

into their broadcasts are switching to more sophisticated ways of persuasion. Garcia pointed to the new format of Radio Moscow as an example. The external service has changed from its old, stodgy propaganda style to a new and friendlier American talk show format. Even so, while the shows (Radio Moscow) are

no longer traditional propaganda, each host has his or her own agenda."

Regarding shortwave's future, the outlook seems to be very positive. Garcia mentioned that every car radio in Brazil receives shortwave and most African national services are broadcast on shortwave. Garcia went on to refute shortwave doomsayers stating, "The people who say that shortwave is going to die are like the people who said the movies would die when TV came. It just is not going to happen."

There is even more good news for shortwave listeners. At the World Administrative Radio Conference in 1992, which will decide band allocations for radio, TV, and satellite communications, Garcia mentioned that the military bands, which have held large amount of HF band spectrum will most likely be freed. This is going to create more frequencies for shortwave broadcasters and listeners.

Despite his optimistic forecast for shortwave as a medium of international communication, Garcia anticipates greater competition for audiences from local stations. It seems that broadcasters will have to learn to be more competitive. He stated, "The losers in the future will be broadcasters who don't understand the medium or its capabilities and do not address the programming concerns for an international audience."

For broadcasters, the future seems to present greater challenges and greater opportunities if shortwave's potential is realized. Yet, for listeners, greater choices and new programming will mean decades of enjoyable listening.

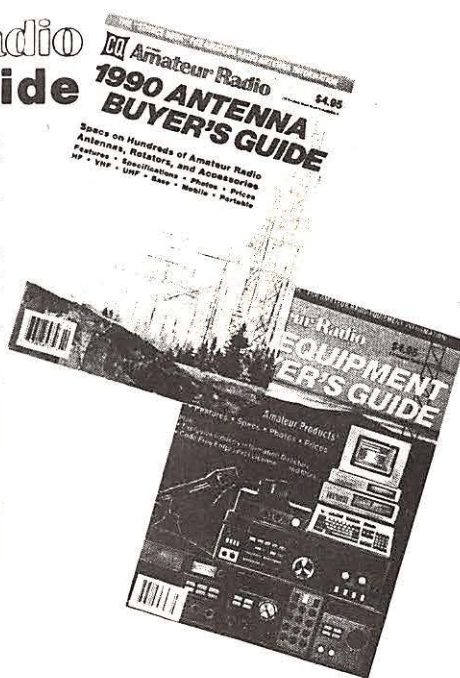


As of August, the edited transcripts and technical papers of the "Turning Up the Volume On International Radio" symposium will be available for sale. For those interested, write Publications Sales Office, CSIS, 1800 K. Street, N.W. #400, Washington, D.C. 20006 or call 202-775-3119.

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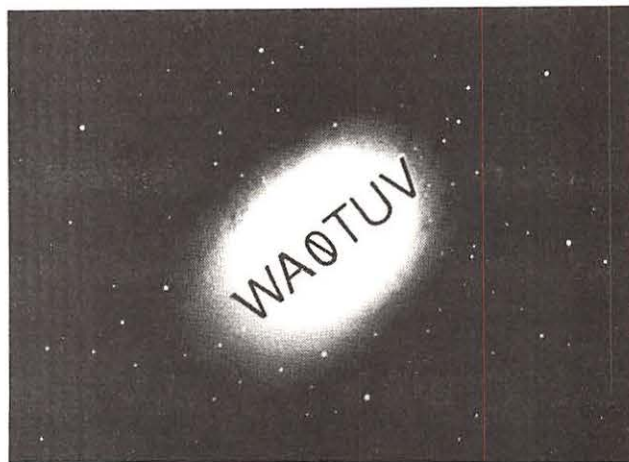
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Duty Calls

by P.J. Richardson

It was hot and muggy, a typical summer day in Kansas, as the caravan wound its way down K-34 from Kansas City. In the lead a black hearse carried the body of Wilbur Sykes, retired these seven years from the railroad, heading now towards his old hometown of Piedmont for the last time. Strung out behind him were several cars of relatives, fellow retirees, and friends who were able to get the afternoon off for the 90-mile trek to the graveside service.

The last vehicle bore a very special group of friends, five men all younger than Wilbur, who used radio call signs more often than their names. As they rode, they reflected on their friend's unflagging enthusiasm for their mutual hobby.

"My 12-year-old Josh went to Wilbur's house twice a week for tutoring until he passed his general class," Jake commented. "I would have never had the patience to get that kid up to 13 words a minute."

Tom Cannon smiled and tried to stretch a little in the cramped car. "Yeah," he said, "we'll need eight guys to do all the work Wilbur did in the club. I'll bet he recruited half our present members single-handedly."

Rick, the Skywarn net controller, has more immediate concerns. "I've got to find someone to fill in his post during the weather watches right away. I understand he's kept the same post since the program started."

As the discussion continued of who would take Wilbur's place for that solitary duty, in the front seat Ron was shooting for the Piedmont repeater on his two-meter mobile rig. He hit the jackpot five miles north of town. Bob, KB0NGE, the local civil defense coordinator and rancher, answered Ron's query.

"I'm afraid we're down here on sad business today," Ron advised him. "Burying one of our own out at your Resurrection Cemetery. Wilbur Sykes was real active in our club and our weather net."

"Don't believe I ever talked with him. I do remember the family name, though. He must've moved away a long time ago," Bob mused. "Well, I think you boys are going to get a chance to exercise your net real soon. National Weather Service expects real unstable conditions to be developing later this afternoon. Could be a humdinger."

The funeral cortege proceeded through Piedmont to a cemetery high above town. From the hill where they said their goodbyes, they could gaze over miles of knee-high corn to the south and west. The sun played hide and seek in the gathering clouds and the air lay on their skin like honey, warm and sticky.

The normally garrulous hams were unusually silent during the trip home, as the realization finally sank in that their friend really was gone forever. Several of them had seen him just the night before his fatal heart attack. The swiftness and finality of his death left them strangely solemn. They hurried back to Kansas City where they would soon be needed. Bob had been right. The weather was destabilizing in a hurry.

That evening Bob manned the civil defense station in the basement of the Piedmont courthouse. As predicted, the weather had gone to hell in a handbasket and what was worse, Bob was seriously short of volunteer spotters. Two were away on vacation and one other was desperately trying to finish putting the new roof on his store before the storm hit. It was times like these that Bob wished Piedmont had the luxury of being covered by the National Weather Service radar umbrella in Kansas City. But this far out, the first line of defense against death and destruction from the skies were the sharp eyes of the farmers and townies who were his spotters. Bob's job on evenings like these was to coordinate weather reports from the phone, police radio, CB and the amateur bands.

Wilbur Sykes had spent 15 years doing a spotter's job, patiently patrolling his sector, routinely reporting cloud formations, hail diameter, wind direction and speed. It was an often tedious and somewhat lonely duty, but he was eager to be of service to the community using his beloved hobby. Once his car flooded out and another time his new Nova was severely damaged by hail, but those were the most exciting events in all those years of weather watching.

Secretly he shared the unspoken ambition of many spotters to just once be the man to report the tornado, save lives and be a hero. It was truly a perverse desire. No one in his right mind would ever wish for a tornado, but if there had to be one, each spotter prayed to be the first to sight it. But in his lifetime, the only tornados Wilbur had ever seen were in the spotter training films.

The scene that developed to the southwest of Piedmont that evening was a classic. A huge black anvil cloud blotted out the sunset. It was raining heavily on the northern edge, while further south the wall cloud rotated ominously. A gust front suddenly flattened the corn as lightening increased in intensity to a constant, angry crackling. Thunder seemed to shake the very earth as a brief but violent hailstorm tore at the cornstalks, announcing the coming doom.

The spinning wall cloud dipped its tail once, then again, dancing across the plain. The storm gathered strength and the funnel bit into the earth yet again, committed now and heading straight for the tender heart of Piedmont.

"WA0TUV." The call came to Bob as clear as a bell.

"WA0TUV, this is net control," he answered. "What's your traffic?"

"This is WA0TUV mobile. I know you don't know me, but I am a NOAA-trained spotter of some experience, and I've got to tell you, there's trouble coming your way. I'm out here on the

edge of town and I have a positive ID on a tornado on the ground about 10 miles south-southwest of your location."

"WA0TUV, you aren't part of my net, stand by," Bob cautioned. He quickly called to another spotter, trying to keep his voice coolly professional. "John, did you copy that? Look to your northwest and see if you can confirm that report."

John's reply was immediate. "Roger, net control." After what seemed an eternity, the radio crackled to life again. Through the rising QRM Bob heard John say the words he feared most. "That's affirmative, net control. One funnel on the ground, heading northwest and fast. Get the word out, and God help you."

In no time civil defense sirens were blasting their ear-splitting screech all over town. The local FM radio station broadcast a "take cover" and police cruisers raced up and down the streets, PAs blaring the terrible news.

When he'd done all he could, Bob returned to the original contact in the minutes before the strike. "WA0TUV, are you still there?"

"Affirmative, net control."

"The warning is out, and our thanks. I don't understand, though, why your transmission is so clear while I can barely hear anyone else on the net?"

"I couldn't say."

"Hadn't you better get the hell out of there? What exactly is your location?"

"Control, I don't believe I'm in any danger right here, about County Road UU and Highway 34, but I'll be on my way presently at any rate. Good luck down there. I sure hope you have everything buttoned up."

"Before you go, give me your name," Bob commanded. "People are going to want to know who to thank for this warning."

But all he heard was static. He rose to put a colored push pin at G-34 on his map. It came down squarely on the old cemetery.

The sirens were still wailing five minutes later when the roar of the powerful twister drowned them out.

The devastation from that night was tremendous, but because of the early warning, not a single life was lost. Stories of the destruction made newspapers in five neighboring states after Governor Hayden declared Piedmont a federal disaster area. As reporters swarmed into the area the next day, Bob hurried to look up WA0TUV in his call book. That man had worked a miracle and deserved recognition.

But as he stared at the call book listing, his two-meter contact with those city boys the day before came back clearly to him. Stunned, he sat down shaking his head. "WA0TUV, Wilbur Sykes," he read. There could be no mistake. But the *Kansas City Star* was not, after all, the *National Enquirer*. He offered a silent prayer, then slowly picked up a pencil and erased WA0TUV from his logbook.

(This story is dedicated to the memory of Charlie Taylor, WB0FBY, who died May 8, 1987.)



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Shortwave Broadcasting

Glenn Hauser

Box 1684 - MT

Enid, OK 73702

ALBANIA Radio Tirana announcements indicate English reduced to only 5 daily broadcasts: 1530, 1730, 2130; and to North America 0230 and 0330 on 9580, 11825 (BBCM) Russian service at 1845 off-frequency on 9637.2, exactly same channel as Mozambique (Finn Krone, Denmark, DSWCI SW News)

ALGERIA Noble Koran Radio, new service in Arabic, heard 1300-1500 UTC on 15160, 9509, and 0800-1000 on 9685 (BBC Monitoring)

ANGOLA UNITA says its Voice of the Black Cockerel [sic] will continue to crow across Angola as the campaign heats up for multi-party elections late next year. Operates from Jamba, 15-kiloperson town created by UNITA as a safe haven 25 miles from Namibian border in 1979 (Ian MacKenzie, Reuter, via Ken Mason)

ARGENTINA ISB feeder to military forces in Antarctica observed on 15780 with Radio Libertad on LSB from 1600; Rivadavia on USB from 1400, both until 2300 (Juan Carlos Codina, Peru, W.O.R.)

ARMENIA Yerevan had external service in Russian, Radio Respubliki Armenii, already in late July, 1400-1500 on 6065, 4810, 4040, joined by 12065 at 1430; asked for real-time reception reports via ham radio contacts to UG7GVA on 14175 (BBCM)

AZERBAIJAN Baku's 4785 transmitter dogged by problems, often heard with distorted audio anywhere between 4600 and 4850 (Dave Kernick, British DX Club) Such as 4665 at 2100, 2150 (Kevin O'Daly, *ibid.*)

BOLIVIA Radio Pio Doce, off normal frequency at 0925-0945, on 5948.61, drifting downwards, but at 1045 something on 5953.43, both then blocked by WYFR, and not heard since (Chuck Bolland, FL)

Radio Emisora Aguadulce, 4625 is in San Joaquin, near Mamore in Beni Dept. (Rafael Medina Mendez, Reyes, via Dario Monferini)

New station on 4210.87 varying to 4210.77, La Perla del Oriente, from 2200 until 0115 sign-off one day, 0300 another; town sounds like Bobore, not Robore; province sounds like Ischipopoti, department is Santa Cruz, announces 4110. Radio Santa Rosa de Yacuma reactivated on 4441.35, 2230-0400. unID on 3736.11 varying to 3738.22 until 0200, Radio something Continente, town sounds like Tupiza (Juan Carlos Codina, Peru, via Dario Monferini, W.O.R.)

Radio Norte, Montero, 4938v, reactivated after 5-1/2 years, 1000 sign-on (E.P. Paurzenk, Argentina)

CAMEROON Radio Douala, 4795, has lovely salsa music program *Weekend sous les Tropiques*, Fridays 2115-2200+ (Henrik Klemetz, Sweden, SW Bulletin)

CANADA CFVP, Calgary, 6030, can be heard only on Mondays when Radio Marti is off, weak at 0710 (Craig Seager, *Australian DX News*)

RCI's relay of BBC on 9590 comes on at the scheduled time 2100 only 35% of the time; three 250-kW transmitters at Sackville are being upgraded to 350 kW (Peter James, ME, W.O.R.)

RCI may resume producing *Coast-to-Coast*, since bilingual staff in Halifax, Edmonton, Ottawa and Vancouver are still on the payroll and would cost nothing more (Larry Shewchuk, Winnipeg, CIDX Messenger) see also CYPRUS

At the Tory convention 52% of the delegates voted to privatize CBC (AP via Bill Dymond)

COSTA RICA *Outlaw for Peace*, Willie Nelson & Friends, is on RFPI Monday-Friday at 1900-1930, repeated 6 and 12 hours later. By October, up to five hours of programming per week will be available. Those ordering the IRS Tapes through this number only, 402-571-3834, will help RFPI since part of the proceeds will be donated for transmitter

upgrade. With RFPI as flagship, *Outlaw for Peace* may go on many more shortwave stations. A catalog of Texas products costs \$5 (Larry Monroe, *Outlaw for Peace*, Route 1, Briarcliffe 13, Spicewood, TX 78669)

RFPI resumed 21465 USB in late August after several week's absence for antenna work, booming in as late as 0400. This will be aimed more toward the east coast and Europe. Preparations are underway to install 20-kW transmitter by yearend. Also check 15030 and 13630; 7375 USB after 0000. *World of Radio* is scheduled: Sunday 2230, Monday 0430, 1030, Tuesday 2030, Wednesday 0230, 0830, Friday 2100, Saturday 0300, 0900, 1930, Sunday 0130, 0730; times vary. New building construction with very thick walls, special concrete formula to resist quakes. AWR's new Cahuita site on the coast was a tropical paradise until quake ruined the scenery (Ken MacHarg, Ecuador, W.O.R.) AWR fax in Alaguella is 506-41-12-82 (C.R. Today)

CROATIA (non) Via WHRI, Croatian Radio, Zagreb, on 7315 has English at 0130-0200 UTC Mondays, 0045 other days (Norman Blakely, Ont., W.O.R.) And there's a repeat at 0400-0500 daily on 7315 (Jack Crout, TX, W.O.R.)

CUBA RHC's SSB broadcasts a total failure--strong signal but unable to clear up in SSB or AM (Dick Trost, CA) Agreed, 5965 at 0300-0600 often modulates only on audio peaks, extremely annoying; long periods of dead air, presumably during soft music.

CYPRUS (non) In exchange with RCI, Radio Monte Carlo in Arabic relayed via Sackville to North America at 0300-0315 on 5960, 9755; one hour later in winter (RNMN)

ECUADOR HCJB's *DX Partyline*'s slips in a weekly spot promoting "Bible science." *Ham Radio Today*'s long-publicized July 31 special topic (including here), taming RF interference, was replaced without explanation by one long sermon on Faraday as a believer, so don't count on October 30's scheduled special report on 160 meter band operations. *Happiness Is*, Tuesday Oct. 15, plans to scale Ecuador's beautiful volcanic mountains.

HCJB's boxnumber in Quito expands thanks to modern technology to 17-01-00691 (Edwin Southwell, England) La Voz de los Andes in Quechua on 6101.10 at 1002-1010, parallel to 3220 (Chuck Bolland, FL) Probably spur of a nearby 49-meter outlet.

HCJB broadcast at least an hour of dead air once at 0030 on 9745 instead of DXPL; 25950 SSB was taken off for transmitter overhaul since reception declined; and the other SSB outlet, 21465, was missing at 1800-1900, presumably to allow Radio Pilipinas to be heard.

On DXPL, Richard McVicar provides regular updates on activity of other Ecuadorian stations, including: Radio Pastaza, 3315, apparently only comes on SW occasionally. On 4680, R. Nacional Espejo not heard for a few weeks, but instead, Emisora Central, Riobamba, 4th harmonic of 1170, fair at 2306.

GEORGIA Radio Tbilisi in English at 0600 on 12070 but poor modulation (Ivan Cholakov, Katunitsa, Bulgaria, *World of Radio*) Also on 12050 at that time; 1700-1730 on 12070, but not always in English; very distorted modulation always (BBCM) 2000-2030 on 11760, "This is Georgia," talks about the republic (Richard A. D'Angelo, PA) Also at 2100 (Christer Brunstrom, Sweden, SWB)

ICELAND News in English at 0730 on 9265 confirmed, audible here only when WWV K-index is 2 or 1, but you're not missing much--a 3-minute roundup of mostly international news (Larry Shewchuk, Manitoba, CIDX Messenger)

INDIA No trace of AIR Kohima on 3268 at 1330-1400 despite

Shortwave Broadcasting

announced 50 kW now! (Victor Goonetilleke, Sri Lanka, DSWCI SWN)

INDONESIA The unID on 4881 at 1130-1201 heard with Christian programming and hymns--could it be a missionary outlet? (David Foster, *OzDX*)

RRI Bukittinggi on 4433, possibly ex-4910, at 1200-1830 //3231.9 with ads, 1400-1410 news. Other RRI stations: Ujung Pandang on 9552 at 0000-0800. Sorong on 9743 at 0100-0800. Pekanbaru on 5984.3 at 0900-1500. Jayapura on 6070 at 0800-1400. Schedules sent by stations: Samarinda 9614 at 2300-0215, 0500-0915; 6134 at 0200-0500. Merauke on 3905 at 0500-1000. Padang on 4002 at 2200-0200, 0900-1700 with 10 kW, 1700-2200 with 1 kW; and unconfirmed on 6190 at 0200-2400. Fak Fak on 4790 at 2000-0100, 0700-1400; 7230 at 0100-0700; 3645 at 1400-2000. Bengkulu 3264 at 2100-0100, 0900-1700. Malang on 3382 at 0700-1200, 1500-1900. Banjarmasin on 3250 at 2130-0100, 0900-1600; 5970 at 0100-0900 (Craig Tyson, *ADXN*)

IRAQ Republic of Iraq Radio's domestic first program in Arabic on 9722.8, intermittently between 0125 and 2200, parallel 4600 and 3980 at times (BBCM)

ISRAEL Unexpectedly in early August, instead of late August, Israel Radio made its long-planned cuts in external broadcasts, eliminating everything between 2200 and 1300 UTC, notably English during North American prime time, 2300, 0000, and 0100. A new English time is 1330-1400, on 17590, 15590, both blocked by interference, and 11605 or 11588, not propagating. Schedule is announced at the end of some broadcasts, notably Tuesday 1925, but exact frequency usage is inconsistent. At 1700-1715, 11675, 15640, 11587, 15590 (blocked by KTNB); 1900-1930 on 11675, 17630, 17685, 15640, 11587, 11605; 2130-2200 on 15100, 17575, 17685, 15640, 11605, 11587. The last two are actually on 11603.5 and 11587.5. *DX Corner* is on Sundays at 1925, 2155. All these times have presumably shifted one hour later as Israel is one of the earliest countries to go off DST each year.

American Jewish leaders responded angrily to the sudden cutoff. Elan Steinberg, executive director of the World Jewish Congress, called the broadcasts "irreplaceable." A review committee concluded that the cuts would save 44% of the annual 10 megashekel SW budget, with the savings put into programs for new Soviet and Ethiopian immigrants. Steinberg says the issue is not money, but priorities. Would IBA rather we listen to Damascus, Baghdad, Cairo or Moscow for news about Israel? "This is a classic case of Israeli bureaucracy cutting off its nose to spite its face, and at the worst possible time," says Glenn Richter, head of the Student Struggle for Soviet Jewry (*Jerusalem Post* via Westenhaver)

(non) Meanwhile, try chasing the weekly *Israel Press Review* around the WWCR schedule, at 15-minute filler for temporarily unsold airtime: has been on Saturday at 1445, Sunday 1115 and Monday 1715, all on 15690.

KURDISTAN (non?) Voice of Iraqi Kurdistan heard on 5831 at 1600-1700, on 5931 for repeat at 0400-0500. Voice of the People of Kurdistan announced time change on 75 mb: 1600 and repeated at 0300 (BBCM)

LEBANON Info Minister says in future licences for private stations will be on FM only, not MW or SW. A station called Radio 1 FM was heard 1000 past 1500 on 27174 variable, in English and French with local ads, ID jingles old recordings of BBC Radio 1; could be a studio-transmitter link for FM outlet (BBCM)

LITHUANIA During the coup, Radio Vilnius missed two days of broadcasting on 11790, but then the Soviet occupiers of broadcasting center were evicted. Independence might mean the end of USSR transmitter usage, so check 9710 for the Lithuanian transmitter.

"Radio defence," or jamming stations, were dismantled in Lithuania in the spring of 1989--five sites in the major cities, each with about 10-15 transmitters of 5 kW or even 1 kW with horizontal or vertical dipoles for groundwave coverage in a 30 km radius; each had a 20-member staff

(Radio Vilnius via BBCM) During the coup, Lithuanians wished some of those transmitters were still usable...

LUXEMBOURG New address of RTL: 45 Blvd. Pierre Frieden, L-2850 Kirchberg (*Eter-Aktuelli* via *Onda Corta*)

MALI Though *WRTH 91* says 4783v, I hear it very well on traditional 4835 (Ivan Cholakov, Bulgaria)

NEW ZEALAND New programs on RNZI: *Pacific Beat*, latest pop records, 0810-0900 Tuesday and Friday on 9700; *People from Our Past*, Sunday-Thursday 2020-2015 on 15120. Tuesdays at 0905-1000 rotating on a 6-week cycle are: *Pacific Review*, *Calling Solomons*, *Vanuatu*, *Kiribati*, *PNG*, *French Pacific* (RNZI)

NICARAGUA Radio Miskut, 5970, Puerto Cabezas, YNPMK, fair-poor signal in San Jose, in July 1500-2300 varying to 2400, bilingual, planned to advance sign-on to 1100 (Tetsuya Hirahara, Costa Rica, *Radio Nuevo Mundo*)

PERU Excerpts from hot news, copyrighted by Juan Carlos Codina via Dario Monferini, u.o.s.:

4278.90, Radio Inca, Banyos, new frequency at 2350.

4299.97, Radio El Puerto, Pacasmayo, due to fuel shortage was active on SW only at 1200-1300; asked for money to Calle Elias Saguier No. 13; later heard at 0030 on 4299.93.

4344.15 varying to 4376.56, Radio Uno, Huanuco, until 0400 sign-off, mentions "CCS," Cooperativa de Comunicacion Social. Earlier had wide-band FM-ish signal covering 4385.75 to 4407.80 at 2300.

4494.98 varying plus/minus 10 Hz, Radio San Mateo, 2300-0300 with slogans "la frecuencia de la amistad" and "el punto clave en la frecuencia de su receptor"; also asking for donations to buy electricity, to Av. Benjamin Galvez No. 118, Contumaza.

4758.83, Radio Tingo Maria, reactivated and strong, 2301 asking for reports to Cas. 25, or calls to 2150, still announcing 4860 kHz; sign-off varies 0244 to 0300.

4778.37, Radio Chincheros, new station 2300-0205. Later on 4785.46 until 0340. Rafael Rojas says it is in Apurimac dept.

4995, Radio Andina is on regularly; the inactive one was Radio Norandina, Celedin, reported last month on 4460.88 (Pedro F. Arrunategui via Monferini)

5235.5, Radio San Antonio de Padua, Arequipa, QSL letter says active for one year with 250 watts, rosary and religious music at 1000, 1700, 0000 (Gabriel Ivan Barrera, *Radio-Enlace*)

5719.96, Radio Nuevo Horizonte, new station in Caramoriza, near Cajamarca, testing at 0020, next day 2300-0100 announcing station would officially open July 29.

5835.51, correct name is Radio Tinajani, "C.S." meaning comunicacion or cooperativa social, sign-on at 2355, invites visits at Jr. 2 de Mayo No. 660, Ayaviri, Puno; or messages to Apartado 24, Ayaviri, Melgar province, Puno.

8514.20 varying to 8517.07, Radio Amistad, Soritor, reactivated, until 0130 or 0330, democratic program supporting teachers' strike; had been closed down two or three years ago for anti-government stance.

DX LISTENING DIGEST

— much more info in the style of this column.

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PHILIPPINES Radio Pilipinas back on SW, at 1800-1900 on 17840, a former Veritas frequency with Soviet interference, and 21455, in English, then Tagalog (Finn Krone, Denmark, via Dario Monferini, W.O.R.) Also on 15190, but audible only on 21455, a day when HCJB was missing; fragment of VOA sign-on at 1800, so Poro or Tinang? Unusual for a station to use 13 meters in the middle of the night (2 a.m. local), but it works--or is this some other VOA relay? Program is in Tagalog, but first half hour full of English expressions, especially numbers, mixed in (call it Engalog, or Pilinglish). Gave address in Quezon City, and said another broadcast at 0230-0330 on 17760, 17840 and 21580 is in English, but not audible here (gh)

RUSSIA We heard the first word to the world that Gorbachev was "sick" and out of power in a 19-second Newsflash on Radio Moscow, 0400 UTC August 19--after an hour of classical music signalling that something was brewing. Later that day longer statements from the junta were repeated. However, the North American service on 13645, 15180 kept repeating as late as 0600 programming recorded earlier referring to Gorbachev as president--and a Mailbag had Joe Adamov talking about previous leaders dying in office. By August 21 RM had regained a more balanced approach, frequently quoting Yeltsin.

Before the coup failed, ham transceivers in The Russian Federation White House kept in contact with the outside, and served as broadcast outlets. Radio Free Russia was heard on 7043 LSB, Aug. 20 at 1850-1905 (Finn Krone, Denmark, via Dario Monferini, W.O.R.) Also mentioned 3640 for night, and 14175 at 0600-0700 (BBCM via David Alpert, London) Glimpse of transceiver on *Nightline* seemed to show 14157 or 14167 (gh) The facilities were identified as belonging to Radio Tri-Ana, phonetics for 3-A (Richard Measham, BBCM via RNMN)

Ekho Moskvii, the independent station, was forced off for about 24 hours by the KGB; latest schedule before the coup on SW was 0400-0700 daily, 1600-1900 daily and 1500-1600 weekends on 9535; heard again on 9535 afterwards, but has Switzerland, other QRM (BBCM)

Radio Vedo, Volgograd, pre-coup sked was 0300-0600 weekends on 7125, 5915; 1500-1900 Monday-Friday and also 1400-1500 Monday-Wednesday, on 13710 and 11760 (BBCM) see also LITHUANIA

RWBI-Radio Without Borders International, Moscow pirate, 6277, testing new antenna Aug. 18 at 0112 (John Ekwall, Sweden, SWB)

SAO TOME has expressed interest in having VOA build a relay here to replace Liberia, but VOA can't afford to evaluate the offer, continues with Botswana upgrade (Robert Horvitz, *OzDX*)

SAUDI ARABIA With Israel gone from prime time, perhaps BSKSA will take up the slack? Sheldon Harvey and William Westenhaver took the opportunity of a visit to Montreal for a Saudi exhibition by H.R.H. Prince Turki bin Sultan bin Abdulaziz, of the Ministry of Information, to suggest S.A. should have an English service easily audible in North America like its smaller neighbors such as U.A.E. H.R.H. said he would pursue the idea when he got back (*CIDX Messenger*)

SURINAM (non) Radio Surinam International, via Brasilia, 1700-1745 weekdays on new 17835 to Europe, including English news around 1725-1735 (BBCM)

SWAZILAND New ID of the English service of Swazi Commercial Radio is Radio KWSW, on 6155 Saturday/Sunday from 0500 with Christian Rock (Vashek Korzinek, RSA, DSWCI SWN)

TAIWAN VOFC has changed its feature programs four days a week in the middle of the 0200, 0700, 2200 and next UTC day 0300 broadcasts: Mon., *Science, Technology & Medicine, Starlight*; Tue., *Kaleidoscope, Intercultural Music City*; Wed., *Journey into Chinese Culture, Sports Beat*; Fri., *Business Digest, Live Concert* (via Diane Mauer, WI, W.O.R.) Also has new *Radio Corner*, hosted by Joanna Fu, at end of *Mailbag Time*, Sundays (Sheila Hughes, BDXC Communication) About :45-:50 past the hours, usually a single topic, such as Sangean receiver news. Said QSL

design changes monthly, and fax number is 886-2-751-9277.

TANZANIA External service heard on MW 1035 only; National Service on 9684.8, and mornings on 7165. Never heard on 5050 but 6105 was active, and 6015 for Zanzibar, no trace of other listed frequencies (Thomas A. Heumann, Tanzania, DSWCI SWN) Radio Tanzania announced later that effective August 18, the National and Commercial Services, due to budget squeeze and to allow most listeners to hear both, would again merge as they had been until last January (BBCM)

UKRAINE This is the season for monthly downward shifts in (Soviet) frequencies, but after the coup in August, Radio Kiev at 0000 had Norway interference on 11790, but clear on 15525 (Jack Crout, TX) And on 12330 (Norman Blakely, Ont.) It was planned for most of the USSR to lose an extra hour of DST at the end of September, so some broadcasts such as this may move a UTC hour later than they have ever been. Many of Radio Moscow's best-heard frequencies were in the Ukraine...

UNITED ARAB EMIRATES Abu Dhabi's English at 2200-2400 for September and October is on 13605, 11965, 9600 (Leslie Edwards, PA)

USA Radio Free New York cut its UTC Sunday 0300 broadcast via WWCR 7435 from three hours to two, financial problems? (Norman Blakely, Ont.) On hiatus till fall, to restructure, revamp, rewind, reset (Kristin Kaye, *Crossband RNI*) Didn't give any notice to WWCR, so at least for a while, plugged in another *World of Radio* airing, UTC Sundays 0305; also on 7435 UTC Saturdays at 0130, and UTC Mondays 0500 or 0505.

Crossband RNI also on hiatus, but may resume in October, meanwhile DX segments by Kristin Kaye and ham radio items appear UTC Mondays after first and third Sundays around 0140 on 7435. Al Weiner says RNI is doing just fine, ultimately lost only two people and added new ones (gh) FCC denied Weiner's application for SWBC station; long memories (Fred Maia, W5YI via Kristin Kaye, RNI)

After congressional pressure, Radio Miami International expects to get a CP soon. *World of Radio* on WRNO: Saturdays 2330 on 7355, Sundays 2030, Mondays 1530 on 15420. After DST ends Oct. 27, W.O.R. times on WRNO and WWCR shift one UTC hour later.

Eternal Word Television Network hopes to have a CP by November for a grand new SW station of four 500 kW Continentals, TCI curtains in Alabama; dropped plans for European site. Will use at least 12 languages, but much of the time simulcasting cable TV net; can run at only 250 kW for short distances. Not affiliated with Vatican Radio, but from Lady of Angelus Monastery (George Jacobs, RNMN)

VENEZUELA Radio Nacional de Venezuela has expanded English programming, as much as 25 minutes starting at :40 past 1100, 1400, 1800, 2100, 0000, 0300. Monday-Thursday, news; Friday, *Venezuelan Week in Review*; Saturday, *Crosstalk*--interviews. Frequency is 9540 only. RNV has resumed QSLing, and reports may be sent via forwarder: Marty Delfin, c/o Jet Cargo International, M-7, P.O. Box 020010, Miami, FL 33102-0010. Replies may also be mailed from US, as postage out of Venezuela is very expensive (Delfin) It's only a 50 kW transmitter running at 10 kW (Jeff White, *Radio Enlace*) Delfin is a Mexican-American from San Antonio, heading RNV's English service. Clearest reception here is on the 1100 broadcast, but English segment sometimes as short as 10 minutes (gh)

ZAIRE Kisangani's correct frequency is 11455, heard with music from 0353, anthem, sign-on ID, program previews, drum music and local vocals, 0430 news, poor with RTTY QRM (Richard A. D'Angelo, PA) La Voix du Zaire, 11454.9, 0400, local language at 0430 when best, 0500 French news (Finn Krone, Denmark, *SW Bulletin*) Also at 1558 to 1632 sign-off (Roland Schulze, Germany, *Fine Tuning*) LSB plus carrier only, ute relay? (Geoff Cosier, *OzDX*) Frequency announcement at 0511

Broadcast Loggings

*Thanks to our contributors -- Have you sent in YOUR logs?
Send to Gayle Van Horn, c/o Monitoring Times.
English broadcast unless otherwise noted.*

0045 UTC on 9540

VENEZUELA: Radio Nacional de Venezuela. English/French. International and Latin American news topics. French news at 0055 UTC, and sign-off at 0106 UTC with Spanish IDs. (John Carson, Norman, OK)

0100 UTC on 11800

ITALY: RAI. English/French. Interval signal and station identification. International news to folk music at 0120 UTC. ID routine for French service programming. Additional monitoring on 17795 kHz at 0553 UTC with Arabic programming. (Carson, OK) (Sam Wright, Biloxi, MS) National news on 9575 kHz at 0100 UTC. (Bob Fraser, Cohasset, MA)

0110 UTC on 6020

NETHERLANDS: Radio Netherlands. Discussion on opera "Don Giovanni." (Rose Carmine, Sidney, OH)

0145 UTC on 5030

ECUADOR: Radio Catolica Nacional. Spanish. Evening religious programming of prayers, rosary, and devotional. (Wright, MS)

0200 UTC on 9115 USB

ARGENTINA: Radio Continental. Spanish. Station ID, Argentine music, and abrupt sign-off at 0206 UTC. (Mike Schmitt, Livermore, CA)

0245 UTC on 5063

ECUADOR: Radio Progreso. Spanish. Latin music program with lively announcer doing promotional, IDs and local ads. Monitored to sign-off anthem at 0340 UTC. (Carmine, OH)

0300 UTC on 4914.7

PERU: Radio Cora. Spanish. Peruvian vocals and "canned" station IDs. Local announcements and ID repeats. (Jeff Leach, Omaha, NE)

0305 UTC on 3300

GUATEMALA: Radio Cultural. "Insight for Living" devotional programming. Gospel vocals and talk on book of Luke. (Wright, MS)

0350 UTC on 4830

VENEZUELA: Radio Tachira. Spanish. Station ID with frequency quote for shortwave and mediumwave services. References to city San Cristobal. Brief Spanish pops, talk and anthem to 0400 UTC sign-off. (Wright, MA) (Carmine, OH)

0355 UTC on 7180

SWAZILAND: Trans World Radio. Interval signal with station IDs. Musical theme music with sign-on at 0400 UTC, into unidentified African language. Amateur-radio interference present throughout broadcast. (Jerry Witham, Keaau, HI)

0402 UTC on 11940

ROMANIA: Radio Romania Int'l. National news, commentary, and talk on economics. "Sports Desk" report at 0425 UTC. (Carson, OK)

0415 UTC on 7510

UNITED STATES: KTBN-Salt Lake City. Taped religious sermon from Baptist church in Florida. (Karen Campbell, Sacramento, CA)

0425 UTC on 7315

YUGOSLAVIA: Radio Yugoslavia. Station identification followed by news on national unrest. (Jonathan Featherstone, Surrey, BC, Canada) Folk music, IDs and political editorial. (Eric Stutler, Hot Springs, AR)

0429 UTC on 5035

CENTRAL AFRICAN REPUBLIC: Radiodiffusion-TV Centrafricaine. French. Piano interval signal to 0430 UTC. National anthem to sign-on ID and station announcements. Fair signal continued through fine African rhythms. Recheck later at 2325 UTC revealed very weak talk, news-type reporting, and similar African tunes. (Stutler, AR)

0445 UTC on 17715

AUSTRALIA: Radio Australia. Time check at tune-in and station ID. Pops and easy-listening music. Audible on parallel 15160 kHz. Aussie conservation discussed on 17795 kHz at 0530 UTC. (Wright, MS)

0450 UTC on 17770

NEW ZEALAND: Radio New Zealand Int'l. Discussion on Tonga and its political power in the Pacific. Children's program on 17770 kHz at 0637 UTC. (Carson, OK)

0455 UTC on 17690

USSR: Radio Moscow. Russian folk music and news at the hour. Heard also on parallel 17890 kHz. Discussion on Soviet trade audible on 17605 kHz at 0611 UTC. Moscow's Cuban relay also audible on 11840 kHz at 1450 UTC. (Wright, MS) Additional monitoring on 17690 kHz heard at 1725 UTC. (Fraser, MA)

0510 UTC on 17730

VATICAN STATE: Vatican Radio. Closing comments on cardinals in the news. Health care discussed with good signal quality on parallel frequency 15090 kHz. (Carmine, OH) Additional monitoring on 9610/9605 kHz at 0300 UTC. (Louis Rossetti, Austin, TX)

0510 UTC on 6155

SWAZILAND: Radio Paralelo 27. Tune-in with "The Morning Show." Pop tunes and station ID from an obvious still-asleep announcer. Continued morning format

broken occasionally by such features as "This Day Back In History." The announcer did appear to wake up abruptly during a graphic description of an album cover picturing a mostly nude Madonna. Strong signal. (Witham, HI)

0520 UTC on 7255

NIGERIA: Voice of Nigeria. Program "African Safari" and song called "Music Africa." Continued West-African music program with clear signal. (Schmitt, CA) Additional programming audible on this frequency at 0605-0650 UTC. (Wright, MS), OK)

0536 UTC on 4915

GHANA: Ghana Broadcasting Corp. Good signal for African music and talk. Station ID and chant-type music rhythms. (Leach, NE)

0550 UTC on 7375 USB

COSTA RICA: Radio for Peace Int'l. Perspective topic on "Inside the Soviet Union." (Carson, OK)

0554 UTC on 7215

COTE D'IVOIRE: Radiodiffusion-TV Ivoirienne. French. Station sign-on and national anthem. Lady announcer's ID/frequency quote, national news. (Leach, NE)

0614 UTC on 9765

MALTA: Voice of the Mediterranean. "Radio Talk Show" to Spanish music at 0625 UTC. (Carson, OK)

0635 UTC on 12035

SPAIN: Radio Nacional de Espana. Station IDs/frequency quote. News and editorials from Spanish newspapers. (Carmine, OH)

0703 UTC on 11835

ECUADOR: HCJB. Show "Mountain Meditations" and "Words of Faith." "Studio 9" program heard on 21455 kHz USB at 1923. (Carson, OK) "Saludos Amigos" program on 21480 kHz at 1925 UTC. (Fraser, MA)

0733 UTC on 9630

NETHERLANDS ANTILLES: Radio Netherlands relay. International news, "Newline," and "Media Network" programs. Trans World Radio relay audible on 11815 kHz at 1100 UTC with "Morning Sounds" program. World news and religious text audible on 15345/11815 kHz at 1200 UTC. (Carson, OK)

0800 UTC on 11715

UNITED STATES: KNLS-Alaska. "Chariots of Fire" interval signal and station ID. Pop rock tune from Hall and Oats duo. Report on South Africa. (Nicholas Adams, Newark, NJ)

0840 UTC on 11752

INDONESIA: (Java) Voice of Indonesia. Discussion in broken English, describing a family hierarchy in a typical Western Java village. Polynesian music followed, ending at 0855 UTC with regional news and station identification. (Witham, HI)

1000 UTC on 4949.9

PERU: Radio Madre de Dios. Spanish. Poor-fair signal quality for ID at the hour and Andean instrumentals. Talk and local type announcements. Continued soft Andean tunes. (Carmine, OH)

1237 UTC on 9750

SOUTH KOREA: Radio Korea. Talk on U.S./Korean relations, followed by program "From Us To You." (Carson, OK)

1240 UTC on 15208

BANGLADESH: Radio Bangladesh. Asian news at tune-in. Station identification and reference to upcoming programming. Nice subcontinent-type music to ID and sign-off at 1300 UTC. (Wright, MS) (Carmine, OH)

1302 UTC on 13625

NORTHERN MARIANAS ISLANDS: KHBI. World news, nostalgic talk on sports, and talk of India heard on 13625 kHz at 1703 UTC. (Carson, OK)

1345 UTC on 21605

UNITED ARAB EMIRATES: UAE Radio-Dubai. Continued series on Mohammed called "The Holy Prophet." (Carson, OK)

1400 UTC on 15690

UNITED STATES: WWCR. Program "Unshackled," into radio show "World of Radio" at 1430 UTC. (Carson, OK)

1505 UTC on 17790

NORWAY: Radio Norway Int'l. Interesting report on women in the business and political world. (Fraser, MA)

1545 UTC on 3945

INDIA: All India Radio. World news followed by a promotional and ID. Station sign-off at 1550 UTC with closing comments, "Please stand by for the next program." (Witham, HI)

1625 UTC on 4902

SRI LANKA: Sri Lanka Broadcasting Co. Sinhala. Chatter among two male announcers to 1630 UTC. Continued discussion, with lady joining the group. (Witham, HI)

1645 UTC on 4970

MALAYSIA: RTM-Kota Kinabulu. Easy-listening music with comments in unidentified language. Lady announcer continued the musical program. Prayers included in programming to 1655 UTC. Station sign-off amid national anthem. (Witham, HI)

1827 UTC on 15010

VIETNAM: Voice of Vietnam. Vietnamese/English. Vietnamese-style music and talk, followed by English comments on the United States embargo on their country. (Robert Gash, Berkeley, CA)

2250 UTC on 5960

CANADA: Radio Canada Int'l. Lively show "Royal Canadian Air Farce Comedy Classics." (Fraser, MA) (Campbell, CA)

Utility World

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In the midst of the coup in the Soviet Union, I sat here in front of the old shortwave receiver thinking about the situation. Almost a year ago to the day, the MT team of Gayle Van Horn, Jim Pogue and myself was working on another crisis capturing world headlines, the invasion of Kuwait. We prepared extensive coverage for you readers in last year's October issue of *Monitoring Times* to aid in listening to the crisis.

Now another world changing series of events is unfolding before us and shortwave radio again is providing insights into what is going on behind the scenes. While President Mikhail Gorbachev was ousted by Communist Party hard liners I sat listening to the soft music on Radio Moscow's World Service with a chill going down my spine. Being a military man, my first thoughts and concern are for the protection and preservation of my own country.

I can't avoid the interesting but very scary thought. Whose hand is on the Soviet nuclear button right now?

Good question! The Soviets have over 30,000 nuclear weapons in their arsenal and a lot of those are destined for the continental United States. Since 1985, we have known whose hand was on the nuclear button. But how can we be sure who has control in a nuclear capable country which is torn by civil strife?

That sent me packing into my files to see if I had any frequencies for the two branches of the military that have the largest stockpiles of nuclear weapons, the Navy and Air Force.

Unfortunately, I have no information on any Soviet voice channels in the HF spectrum. The low power used by their radio sets for voice transmissions may account for why there are so few loggings of the voice frequencies used by the Soviet military.

The Soviets use the HF spectrum primarily as a two-way channel for long range ship-to-shore communications. Soviet HF radios can operate using telegraphy and voice modes. However, a major portion of the Soviet shipboard HF radio sets operate in the F1B (telegraphy) mode, since this mode allows the Soviets fast programmed frequency changes.

Output from these transmitters is typically 25 to 100 watts and they are fully automatic. Reports indicate that the radio sets used by the Soviets have 30 preselected channels spaced at 100 Hz intervals. They also use HF single side band transceivers with 400 channels spaced at 10 kHz intervals. These are used for ship-to-ship and ship-to-aircraft communications with a power of five watts.

The Soviet Navy local night time frequencies use the spectrum from 2 to 5 MHz to achieve ranges up to 200 nautical miles. Their daytime frequencies for the same range is from five to nine nautical miles. For ranges up to 500 nautical miles they use 3 to 7 MHz at night and between 7 and 14 MHz in the daytime. Whenever the distance between the sender and the addressee exceeds the range of the radio horizon, transmissions are conducted by radio relay. For these purposes, the Soviets mainly use an onshore communications post or helicopters.

On shore command posts and Soviet force commanders or ship pair commanders at sea normally conduct communications via HF links. HF message transmissions are normally held to a minimum during combat maneuvering, and even then they are encoded.

The Soviets do use Low Frequency (LF)/Extremely Low Frequency (ELF) for long range communications, especially with their submarines. These transmissions normally use telegraphy and also signals for precise time. Because of low data rates, this frequency is not used for tactical communications between Soviet surface ships.

As I mentioned before, telegraphy is used as one of the basic types of communications between Soviet surface ships and command posts ashore. The Soviets also place a premium on the automatic recording

of transmitted messages for controlling Soviet naval forces at sea.

Radio secrecy, security and discipline are high on the list of achievements by the Soviet military. On board Soviet naval vessels, communications can only take place on the order of a ship's Commanding Officer, or (within a ship unit) on the order of the force commander, or on call from the main shore-based radio post.

Soviet Naval shore based transmitter sites include the following known stations:

| | |
|-------------------------------|--|
| Amderma, Leningrad | LF transmitter operating to the Kara Sea |
| Arkhangelsk, Leningrad | VLF transmitter used for sub comms to the White and Barents Sea |
| Baltiysk, Baltic | Headquarters-Baltic Fleet |
| Batumi, Transcaucasus | VLF transmitter used for sub comms to the Black and Mediterranean Seas |
| Dikson Ostrov, Siberian | VLF/LF transmitter used for sub comms to Arctic Ocean and Kara Sea |
| Feodosiya, Odessa | Submarine base, Black Fleet |
| Gorkiy, Moscow | VLF transmitter used for worldwide subcomms |
| Iokanga, Leningrad | Submarine base, Northern Fleet |
| Kaliningrad, Baltic | Submarine base, Baltic Fleet; VLF/LF transmitter operating worldwide and to Baltic and North Seas |
| Kholmok, Far East | LF transmitter operating to Seas of Japan and Okhotsk |
| Komsomolsk-Na-Amure, Far East | VLF transmitter used for communications and navigation, one of three stations in the Soviet Alpha navigation network |
| Krasnodar, North Caucasus | VLF transmitter used for worldwide communications, also one of three stations in the Soviet Alpha nav. network |
| Leningrad, Leningrad | Headquarters-Baltic Fleet |
| Liepaja, Baltic | Naval Base |
| Litsa, Leningrad | Submarine base-Northern Fleet |
| Matotchkin Shar, Far East | VLF transmitter used for long range sub comms to Barents and Norwegian Seas (located on Novaya Zemlya Island) |
| Moscow, Moscow | Headquarters-Russian Navy |
| Mys Zhelaniya, Far East | LF transmitter operating to Arctic Ocean |
| Novosibirsk, Siberian | VLF transmitter used for worldwide comms and one of three stations in the Soviet Alpha navigation network |
| Odessa, Odessa | VLF/LF transmitter operating worldwide and to the Black Sea area |
| Olenya, Leningrad | Submarine base-Northern Fleet |
| Petropavlovsk, Far East | VLF transmitter used for long range subcomms |
| | LF to Sea Okhotsk and Bering Sea Main Pacific submarine base |
| Polyarnyy, Leningrad | Submarine base-Northern Fleet |
| Provideniya, Far East | LF transmitter operating to the Barent Sea |
| Rostov, North Caucasus | VLF transmitter used for worldwide naval comms |
| Sayda, Leningrad | Submarine base-Northern Fleet |
| Sevastopol, Odessa | Headquarters-Black Sea Fleet |
| Severo Kurilsk, Far East | LF transmitter operating to the Seas of Japan and Okhotsk |

| | |
|----------------------------|--|
| Severomorsk, Leningrad | Headquarters-Northern Fleet; VLF/LF transmitter operating worldwide and to the Arctic Ocean |
| Sovetskaya Gavan, Far East | Main Pacific naval base |
| Tallin, Baltic | Baltic Fleet naval base |
| Vladivostok, Far East | Headquarters Pacific Fleet; VLF/LF transmitter for sub comms to the Sea of Japan and Pacific |
| Havana, Cuba | Naval Base |
| Santiago, Cuba | Naval Base |
| Luanda, Angola | Major communications facility |
| Maputo, Mozambique | Communications Facility |
| Asmara, Ethiopia | Soviet Naval logistical base |
| Tripoli, Libya | Communications relay ship |
| Aden, Yemen | Port facilities |
| Cam Ranh Bay, Vietnam | Major submarine and ship base |

17.1 kHz appears to be a primary submarine broadcast frequency with a mix of Soviet Navy and Ministry of Communications VLF transmitters operating on the frequency as follows:

| | |
|-----------------|------------------------------------|
| RJS/Vladivostok | ROD9 & UDK/Severomorsk |
| UFD/Arkhangelsk | URD/Leningrad |
| RIW/Khiva | Other calls noted: RYD UDI RYA RES |

There is another major VLF station that is associated with the Soviet military: UMS in Moscow on 18.1 kHz. This station has broadcast naval messages to Soviet SSN and SSBN submarines using very narrow shift CRATT, high speed telegraph and manual CW modes of transmission.

There is a major ELF communications site that is nearing completion on the Kola Peninsula. This site will be used to communicate with first line Soviet SSBN submarines under the Arctic ice pack using encrypted message traffic.

One observer of Soviet Navy communications believes that the callsign ROD appears to be used to announce broadcast traffic to the Soviet Naval fleet. This message traffic can be of a general type for all naval ships or the broadcast can be for a specific fleet, squadron, group of ships or even a single ship by the addition of the word 'FOR' followed by a call sign in the message preamble.

In the Soviet Pacific Fleet communications area, RJS in Vladivostok is regularly heard working call signs RCC, RCS7, RVR3 and UPG8. One source thinks that SOVPACFLT headquarters Vladivostok is maintaining communications with Sovetskaya Gavan, Korsakov (on Sakhalin Island), Petropavlovsk and Magadan. The line-up of callsigns versus the above locations is unknown at this time.

In the Soviet Baltic Fleet communications area, RMP at Baltiisk (Kaliningrad) puts in a very strong signal here stateside indicating that it can communicate with ships and aircraft far outside the Baltic Sea. Other Baltic Sea naval call signs include: RCN4-Leningrad, RCN6-Tallin, RCN9-Liepaja and UMI2 (location unknown).

Stations RCV, RIW and RIT appear to be major C2 (Command and Control) centers for the Soviet Navy. RCV appears to be a major communications relay station located in the Western USSR. RIW and RIT also appear to be located in the western USSR. It is believed that these two stations directly support primary and secondary C3I (Command, Control, and Communications Intelligence) centers of the Soviet Navy. One source says he doesn't concur with the widely published sources that RIW is located in Khiva in the Uzbekistan. He believes that the Khiva site is only one of many remote radio sites connected to a control point with the call sign RIW. Many Soviet Navy ships send encrypted message traffic to "FOR RCM6 RIW RIT UXGN."

Several other callsigns have also been monitored on Soviet naval communications circuits. These include: ULW2, RUV7, RIF4, UNU3 and RQN3. Some monitors believe these callsigns are associated with various military and civilian weather and oceanographic data collection/forecast centers.

Non-tactical ship call signs appear to primarily have 'RM' prefixes. Other Soviet ships carry UA, UC, UF, UG, UM, UH, etc prefixes. Some Soviet ships are now supporting the new prefixes like EY, EZ and EX. Soviet naval tactical call signs are three and four alpha-numeric group type calls which appear to change on a prearranged basis.

Where do you hear Soviet naval activity? The following list is not complete and only represents the tip of the Soviet naval communications iceberg. Updates and any new information that might be available is appreciated. All frequencies are in kHz.

| | | |
|--------|--------------------|---|
| RCV | Moscow | 4264 5322 6352 6904 7574 8576 9456 9476 12202 12723 12744 15465 6376 16942 16948 19098 21764 |
| RIT | Vaygach | 5785 6961 8596 9218 12692 15656 16936 18876 20484 20968 |
| RIW | Khiva, Uzbek | 5128 5148 6394 7577 7779 7965 8508 8523 9145 9236 9370.5 10435 10510 10690 10798 10912 11000 11048 11488 11531 11592 12056 12675 13064 13425 13828 14405 14446 14468 14505 14509 14541 14545 14556 14559 14644 14792 15656 16338 16392 16397 17088 17110 17184 17504 18504 18560 18644 18696 18808 18952 19090 19098 19210 19985 19993 21380 21764 21784 22568 22710 |
| RMP | Kaliningrad | 4163 5194 5881 6500 6972 8680 10118 10888 11132 12720 12833 16016 16934 18720 |
| RMT | Chelyuskin | 14211.9 |
| ROT | Moscow | 6345 8456 8500 12995 13045 17045 17130 17155 22450 22454 25130 25175 |
| ROT2 | Moscow | 6445 17045 |
| UJE | Moscow | 12967 |
| UMS | Moscow | 17.1 6849 7564 8478 10490 11430 13449 14140.9 14171 19029 19517 21032 21285 |
| UIT | Lazo | 11326.3 |
| C9C8 | Maputo, Mozambique | 8642 |
| CMU967 | Santiago, Cuba | 5258 6562 6690 6868 8120 8569 10435 10644 10725 10796 11114 11278 11555 14792 14968 15384 15497 17424 18167 |
| COY851 | Havana, Cuba | 13390 |
| COY895 | Havana, Cuba | 7935 9169 10536 11406 14697 |
| COZ67 | Havana, Cuba | 5058 |
| D3L25 | Luanda, Angola | 8642 |
| D3M93 | Luanda, Angola | 16090 16395 |
| 70W93 | Aden, South Yemen | |

Other frequencies to watch for Soviet naval activity include: 5137 5173 5385 5428 5445 6735 6765 6770 6778 6780 6967 10680 10750 10796 14792.

The Soviet Navy isn't the only military force in the Soviet Union to carry nuclear weapons. The Soviet Air Force also carries nuclear weapons and has long range bombers just like our own Strategic Air Command (SAC).

The Soviet Air Force can also be heard on HF frequencies, using CW as a primary communications mode. Check out the following frequencies for activity: 4573 4667 4842 5224 6596 6866 6941 8824 8954 11354 13200 15078 17908 19984 21896 23316.

Thanks go to all of you who helped put together this profile on the Soviet Navy, especially long-time contributor Mark Chinsky. Many of you responded on short notice to help piece some of the puzzle together. Now it is time to see what you have been hearing this month in the Utility World. See you all at the convention.

Utility Loggings

Abbreviations used in this column

| | | | |
|---------|--|---------|--|
| Aeradio | Aeronautical Radio | MHz | Megahertz |
| AF | Air Force One | MV | Motor Vessel |
| AFB | Air Force Base | Net | Network |
| AFRTS | Armed Forces Radio and Television Service | Ops | Operations |
| AM | Amplitude Modulation | OPSEC | Operational Security |
| ARQ | Synchronous transmission and automatic reception | PIREP | Pilot Report |
| ARQ-E3 | Single channel ARQ mode | QSY | Change frequency |
| ATA | Albanian Telegraph Agency | RTB | Return to Base |
| CG | Coast Guard | RTTY | Radioteletype |
| Comms | Communications | RY | Typical test tape using characters R and Y |
| COMSTA | Communication Station | SAC | Strategic Air Command (USAF) |
| CP | Command Post | SITOR-A | Simplex teleprinting mode A (ARQ) |
| CW | Morse Code | SITOR-B | Simplex teleprinting mode B (FEC) |
| EC-135 | SAC Command Aircraft | TAC | Tactical |
| ETA | Estimated Time of Arrival | UHF | Ultra High Frequency |
| F-16 | USAF Fighter aircraft | Unid | Unidirectional |
| FAX | Facsimile | USAF | United States Air Force |
| Foxes | A common RTTY test tape | USB | Upper Sideband |
| HF | High Frequency | USCG | United States Coast Guard |
| HZ | Hertz | USN | United States Navy |
| Id | Identification | USSR | Union of Soviet Socialist Republics |
| kHz | Kilohertz | UTC | Universal Time Coordinated |
| LDOC | Long Distance Operational Control | VHF | Very High Frequency |
| LSB | Lower sideband | VOLMET | Aviation Weather stations |
| MAC | Military Airlift Command (USAF) | | |
| MARS | Military Affiliate Radio System | | |
| Meteo | Meteorology | | |

All frequencies in kilohertz (kHz), all times in UTC. All voice transmissions in English unless otherwise noted.

- 60.0 MSF-Time Signal Station Rugby, England, with time signals and CW ID at 0002. (Ary Boender-The Netherlands)
- 70.0 HBG-Time Signal Station Prangins, Switzerland, with time signals and CW ID at 2338. (Boender-Netherlands)
- 77.5 DCF77-Time Signals Station Mainflingen, Germany, with time signals and CW ID at 1055. (Boender-Netherlands)
- 410.0 VRGH-MV Mineral Europe, JKRB-MV Koharusan Maru and WPKB-Sealand Value all heard here using CW between 1218 and 1615. (Boender-Netherlands)
- 418.0 GNF-North Foreland Radio, England, working unid ship in CW at 1340. JHTE-MV Terutoku Maru with a CW message in regards to LPG tanker operations at 1543. (Boender-Netherlands)
- 421.0 PCH-Scheveningen Radio, Netherlands, with traffic list in CW at 1250. (Boender-Netherlands)
- 444.0 TJFD-MV Bjorg Jonsdottir calling Norddeich Radio in CW at 1123. (Boender-Netherlands)
- 454.0 UQDF-Unid Soviet vessel calling Scheveningen Radio in CW at 1955. *Nothing on Gayle's callsign list or the ITU, Ary-Larry. Also heard by Ary on this frequency: UWCV-MV Klement Gotwald, ESGU-MV MB 120, UERT-MV Valya Kourakina, PFCA-MV Japan Sea, SVQT-MV Aghia Trias, UPFR-MV Dzintarzene, SYBD-MV Cherry Flower and SWBT-MV Apilolis all in CW at various times. (Boender-Netherlands)*
- 480.0 UVXP-MV Krasnokamsk and SZSC-MV Cielia heard in CW at 1525 and 2248 respectively. (Boender-Netherlands)
- 489.0 PGTV-MV Pioneer working Scheveningen Radio in CW at 0810. (Boender-Netherlands)
- 500.0 OST-Oostende Radio, Belgium announcing a traffic list in CW on 435 kHz at 1002. FFB-Boulogne-Sur-Mer Radio, France announcing a nav warning on 450 kHz at 0754 and PCH-Scheveningen Radio, Netherlands announcing a nav (navigation) warning on 461 kHz at 0820 all in CW. (Boender-Netherlands)
- 512.0 3ESD-MV Fortune Bell with CW messages at 2030. (Boender-Netherlands)
- 518.0 PKB-Netherlands Coast Guard with a SITOR-B nav warning broadcast at 1548. (Boender-Netherlands)

- 4445.0 Kiwi Radio, New Zealand calling and working Grease Spot, Ellie, Rock Steady, Monday Monday, Ba Ba Baran, Iceic, Mandella, Sympathy, Zulu, Nimbth, Perra Greena with a roll call including local weather, current positions, intended course next 24 hours and updating with latest official weather forecast, and checking that all is well on board in USB till 0823. With roll call completed, station said standing by for traffic, followed by Eagle, Close Shave, Minstrel, and Great Escape calling and working Kiwi Radio with positions, local weather, passing messages, and a couple of requests for phone calls to be made on behalf of families with messages. Various other boats calling and working Kiwi Radio till about 0900. (Gordon Trigg-New Zealand)
- 5000.0 WWV-Fort Collins, CO Time and Frequency Standard Station with time ticks and English IDs at 1955 in AM. (Eugene Lish-Seminole, FL)
- 5360.0 VJO-Flying Doctor Service, Kalgoorlie, West Australia in USB at 1002. (Eddie Waters-Australia)
- 5696.0 Coast Guard Rescue 1488 (Pelican Helo) departing Otis-Cape Cod Air Station to boat sinking off Woods Hole, MA. Was later released from rescue and went to Beverly, MA in USB at 0400. (Brown-MA)
- 6148.6 Unid fishing boat comms in USB at 1341. The way they choose frequencies it won't be long before they're on FM! (Bergadano NJ)
- 6643.0 Berne LDOC, Switzerland working an American aircraft for company messages and a request for Geneva weather (got Zurich instead). In USB at 0421. (Fernandez-MA)
- 6683.0 Coast Guard 01 working Andrews at 1118 in USB. (Brown-MA)
- 6693.0 Port St. Jean working Halifax military with HF radio check at 2359 in USB. (Bill Battles-East Kingston, NH)
- 6715.5 Producer Alpha working Producer in USB at 1330. (Bill Frantz Thomasville, GA)
- 6721.5 Lima Charley Control, Lima Charley 23, Lima Charlie Bravo, Rushmore with radio checks and typical military comms in USB at 1640. (Frantz-GA)
- 6724.5 Tango Forward, Tango Rear, Induction Forward, Induction Rear, OT setting up for air training exercise at Shaw AFB, SC in USB at 1500. (Frantz-GA)
- 6730.0 Lockheed Flight working AC5247 in USB at 1825. (Frantz-GA)
- 6756.0 AFA-Andrews AFB working Proclaim (EC-135) with radio checks at 0103 in USB. Proclaim also heard on 9017 with WAR-46. (AF1 comms detail). (Battles-NH)
- 6761.0 Rushmore Control working Expo 94, Fault 80, Fault 85 and Pullover in USB at 0300. Expo 94 wanted to refuel with Fault 85, a EC-135. Refuel frequency was 297.3. (John Robinson-Antioch, TN)
- 6812.0 SAM 203 working Andrews and SAM command/maintenance at 0141 in USB. (Robinson-TN)
- 6825.8 Spanish female 5-digit number station in AM at 0532. Very distorted signal and frequency should have been 6825. (Fernandez-MA)
- 6858.5 Shotgun working Hillbilly in USB at 1515. Military comms, weak signals. (Frantz-GA)
- 6979.8 English 3/2-digit male station in AM at 0407. (Fernandez-MA)
- 7660.0 Australian Police Dispatcher working a police launch 42 nautical miles south by south east off Sydney discussing the weather, intended course and ETA for next job in USB at 2210. Dispatcher standing by on this frequency for further traffic from launch owing to thunderstorm warnings for area. Next check call at Australia 0900/2300 UTC. (Gordon Trigg-New Zealand)
- 7975.5 Xray 50 calling a station with no reply. Sounded like an aircraft. Then calling other stations with still no replies. Had a strong British accent in USB at 0546. (Fernandez-MA)
- 8000.0 Unid stations in LSB at 0310. Someone transmitting a tape (Please consult your directory for assistance, SSB 105) over a male constantly talking in Spanish. Occasionally a male would come on in English and make a few comments to 'tape' station but no reply. Then he used Corridor ID while in comms with another station (unheard) which was tactical in nature. Then the 'tape' station returned, when the weaker station 'Corridor' cleared. This frequency was so full of bizarre stuff, I had to leave for scanner listening! This stuff continued for the next hour plus, then the frequency was dead for the rest of the night. Anybody want to try this one? Fernandez-MA)
- 8056.7 Spanish female 5-digit number station in AM at 0401. (Fernandez-MA)
- 8185.0 Marshmello working Stingray with several personal and tactical phone patches. A truck transporting material to a dock was mentioned while other calls were personal in nature. These two stations were running patches for the next two hours. In USB at 0250. (Fernandez-MA)
- 8345.0 UKFI-Soviet spaceflight tracking ship NIS Kosmonaut Yuri Gagarin, ship-to-ship with UZYY NIS Kosmonaut Viktor Patsayev. Relaying F001 telemetry tables for the just launched Progress M-6 spacecraft enroute rendezvous with the MIR space station. Progress M-6 referred to as

QBXEKT "I". Gagarin in North Atlantic, Patsayev in Gulf of Guinea at 0311 using 170 Hz shift RTTY. (Sam Ricks-PA)

8722.0 WOM-AT&T High Seas Ft. Lauderdale, FL on their new frequency, first day of the big marine shift at 1303 with a traffic list using USB. (Battles-NH)

8819.0 VOLMET-Krasnodar, USSR with Russian aviation weather at 1643 in USB. (Waters-Australia)

8855.0 Cayenne ATC, French Guiana working MAC 70021 with a position report/altitude change request. Aircraft was east of West Indies using USB at 0231. (Fernandez-MA)

8906.0 New York Aeradio working numerous aircraft, near constant chatter in USB at various times. (Mike Starr-Hadley, MO)

8957.0 Shannon VOLMET, Ireland, in USB at 0135 with aviation weather for different terminals around Europe. (Fernandez-MA)

8984.0 USCG COMSTA Miami, FL, advising CG 1486 that OPSEC request the QSY to the Army's "Bravo" frequency and call aircraft call sign "17 Alpha" as the Army was unable to raise their aircraft. (Battles-NH) *That is an interesting intercept Bill-Larry.*

8993.0 Shadow 92 with phone patch to various agencies at Eglin AFB. Later phone patch to various bases in the SE United States for meteorological information but gave no piprep. In USB at 0230. (Brown-MA)

9035.0 Same stations as on 6724.5 helping each other with a new computer program in USB at 1950. (Frantz-GA)

9043.0 USS Boone with the cutter Decisive working Cape Radio preparing for a shuttle launch in USB at 1705. (Frantz-GA)

9045.0 5YE-Nairobi Meteor, Nigeria, with a FAX weather chart at 2216. (Waters-Australia)

9057.0 Hickam AFB, HI calling an aircraft for a radio check but no contact made in USB at 0212. (Fernandez-MA)

9132.8 ZAA6-ATA Press Service, Tirana, Albania with English 425 Hz shift RTTY news bulletins at 0801. (Waters-Australia)

9254.0 German female 3/2-digit number station in AM at 0340. (Fernandez-MA)

9260.0 Stingray working Foxtrot (USAF stations) in USB, talked of a needed bolt fitting. Was at 0253. (Bergadano-NJ)

9996.0 RWM-Moscow, USSR Time Station with time signals and CW ID at 1606. (Trigg-New Zealand)

10057.0 Brazzaville VOLMET, Congo, with aviation weather for terminals in Africa in English at 0257 in USB. (Fernandez-MA)

10167.6 PHWR-U.S. Air Force Weather Service, Hickam AFB, HI, with 850 shift RTTY weather reports for S.E. Asia area at 0948. (Waters-Australia)

10282.9 MKK-London, England, with RTTY foxes test tape at 2207. (Waters-Australia)

10344.0 Radio Moscow, USSR, broadcast feeder with an English broadcast in USB at 1416. (Trigg-New Zealand)

10390.0 FSB-INTERPOL Paris (St. Martin Abby), France, with SITOP-A idler and CW ID at 2145. (Fernandez-MA)

10478.0 Alpha Mike working Lima India with very weak signals. Haven't heard this frequency in use for a long time. (Frantz-GA) *Yep, this is a Gang Buster Cemetery Network frequency-Larry.*

10537.8 AFRTS feeder heard with station ID in LSB at 2054 then music. (Battles-NH)

10663.0 KAWN-Offutt AFB, NE, with coded meteorological broadcast using RTTY 850 Hz shift at 1525. (Art Blair-San Francisco, CA)

10780.0 Agar 25 working Cape Radio from 1535 to 1730+ in USB. Many phone patches to Abnormal 10 (Vandenberg) then patched into Ashley 12 (Wheeler AFB, HI) to run simulcast duplex HF pairs with recorded data and 'mark events'. (Used 11510/13756, 10305/11110, 14987, 15793, 17560. Agar went simulcast on 11510/14987 and several other pairs.) (Battles-NH)

10841.0 MUA-British Army, London, England, with SITOP-A at the idle at 0605. (Waters-Australia)

10869.1 RFQP-French Forces, Djibouti, with ARQ-E3 controle de voie calling RFV1. (Waters-Australia)

11108.8 Several fisherman working each other in USB at 0047. (Robinson-TN)

11132.0 Qantas LDOC-Sydney, Australia, Qantas 9 calling on company frequency in USB at 0800. (Waters-Australia)

11189.0 Foxtrot Tango working 7 Juliett with radio checks and typical military comms in USB at 0320. (Frantz-GA)

11195.0 Rescue 101 working Australian Royal Air Force, Darwin in USB at 0634. (Waters-Australia)

11215.0 Diamond calling Blue Jay; no response in USB at 1750. Diamond referred to this frequency as 'Alpha'. (Frantz-GA)

11222.0 Stockholm LDOC, Sweden, making phone patches for aircraft to locations in the United States which were personal in nature. Aircraft IDed as 239. In USB at 0240. (Fernandez-MA)

11243.0 Head Dancer working Unanimous with a phone patch to Raymond 01 in USB at 1324. (Battles-NH) *That one is a little unusual Bill. TAC working on SAC-Larry.*

11271.0 Head Dancer working Lajes AFB, Azores at 1239 in USB. (Battles-NH)

11440.0 Shadow 91 and Shadow 92 working each other on HF in USB at 0100. (Robinson-TN)

11466.0 AF1 (SAM 29000) calling Andrews and advising that they were switching from USB to LSB at 2234. (Nick-??)

11487.0 Unid stations (Australian Truck Drivers) working each other at 0532 in USB. (Waters-Australia) *Eddie, my reference shows VH2GRI-Yager GW&NE, Transport Grafton, a couple of Bus companies and a drilling outfit on this frequency-Larry.*

12521.0 UISZ-Soviet spaceflight tracking ship NIS Akademik Sergei Korolev, with kriptogrammas for retrofire tracking ships UZZV, NIS Kosmonaut Georgi Dobrovolski (Gulf of Guinea) and UIVZ, NIS Kosmonaut Vladislav Volkov (off Argentina) several days before the launch of Soyuz TM-12 (British Kosmonaut mission) at 0310. The Korolev had just relieved the NIS Kosmonaut Yuri Gagarin in the North Atlantic off the Azores. RTTY 170 Hz shift. (Ricks-PA)

13205.0 Royal Australian Air Force station Darwin conducting a radio check at 2018 in USB. (Waters-Australia) Royal New Zealand Air Force heard here in USB with ground to air communications at 0227. (Bergadano-NJ)

13207.0 Maple 91 calling Maple OPS. These are Vermont Air National Guard F-16's which were engaged in a NORAD exercise in warning are W-105 off the Massachusetts coastline. They were RTB Burlington and were making an effort to contact their command post for weather data. I was also monitoring their VHF/UHF interplane frequencies and heard them mention this HF frequency and immediately dialed it up on my ICF-2010. Frequency confirmed, but they were unable to contact their command post on it. (Henry Brown-East Falmouth, MA) *Nice catch Henry, what was the VHF/UHF interplanes you heard them on? Standard NORAD stuff-Larry?*

13330.0 Amiri One heavy (A7AAA Amir of Qatar) working Houston Universal requesting someone from "the Green Team" meet them at Bangor International Airport, ME, with "as many yachting and ocean magazines as they could find". The aircraft was over Florida at 2358 with an ETA Bangor of approximately 2 hours. How about it Larry does this one qualify for the strange one of the month? (Battles-NH) *No Bill, just the best log of the month, Hi-Larry.*

13342.0 Qantas LDOC-Sydney, Australia working Qantas 105 about their air conditioning in USB at 0545. (Waters-Australia)

13351.0 Brussels Radio working Sabena 556 at 0019 in USB with an arrival message. (Battles-NH)

14393.0 NNN0CNZ-William V. Pratt (DDG-44) working NNN0NHA with phone patch traffic in USB at 2355. (Bob Pettengill-Blanchard, OK)

14605.0 Air Force MARS working MAC 020 with phone patch traffic in USB at 0318. Also heard other various MAC flights working ground stations in rotation. (Pettengill-OK)

15642.0 Unid station using ARQ mode (mining operation) at 0953. (Waters-Australia) *Eddie, I don't have a listing on your continent on that frequency-Larry.*

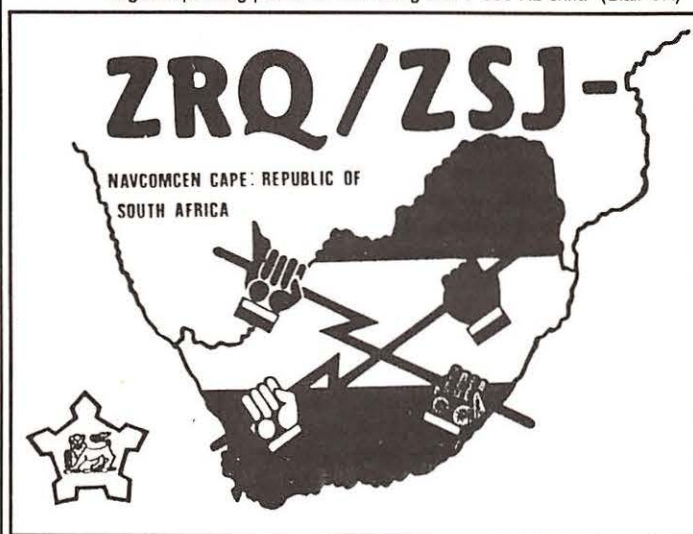
16000.0 VNG-Australian Time Station, Lyndhurst with time signals at 0820. (Waters-Australia)

16330.0 RKA75-Radio Moscow broadcast feeder noted with Russian female announcer in USB at 0025. (Lish-FL)

16516.7 XBRJ-Mexican Navy located in La Paz, Mexico with traffic in Spanish at 2048 using SITOP-A. (Blair-CA)

16676.0 USJZ-Soviet factory ship PB Sergei Vasilisin with traffic for Murmansk Radio at 2210 UTC. Factory ship anchored 3 miles off of Cape May, NJ in joint venture with 8 US trawlers processing 5,000 metric tons of mackerel. RTTY 170 Hz shift. (Ricks-PA)

20132.0 Ministry of Foreign Affairs Belgrade, Yugoslavia with items from the English speaking press at 1441 using RTTY 350 Hz shift. (Blair-CA)



The Scanning Report

Bob Kay

c/o MT, P.O. Box 98
Brasstown, NC 28902

Monitoring Mischief

The night before Halloween is traditionally called "Mischief Night." When I was a kid, our mischief was limited to soaping car windows or ringing a few door bells. In today's society, mischief night has been marked by widespread destruction. In several U.S. cities, large groups of vandals have destroyed personal property and set buildings on fire.

In an effort to control vandalism, metropolitan police departments will place every available officer on patrol, filling your local police frequencies with red hot nonstop action.

But your local police is not the only agency that will be affected by mischief night. You'll find plenty of scanning action across the entire VHF spectrum. Here are a few hints and ideas that will help you to locate the hot frequencies in your area.

If you've been looking for an elusive local frequency, mischief night is the best time to find it. To discover a new frequency, simply search the range of a known frequency. For example, if your local police frequency is 45.540 megahertz, search between 45.00 and 46.00 megahertz.

When searching for new frequencies, don't forget that frequencies are separated into specific bands. If you're trying to locate a city police frequency, don't waste your time searching the federal bands. To familiarize yourself with the various bands, review the chart in Table 1.

Your local "Town Watch" frequency will also be very active. If you don't know your Town Watch frequency, don't get discouraged. In many cases, the police dispatcher will mention the type of communications that the town watch group is using. You may discover that you'll need to monitor a CB or ham frequency.

In my town, ham radio operators volunteer to report suspicious activity to the local police. The information is radioed to a central ham dispatcher, who then calls the local police via land line. When assisting in community affairs, ham operators will generally use the two meter band: 144.00 to 148.00 MHz.

Don't neglect your local fire department frequencies. Volunteer firemen may be utilized to help the police, or to assist young children to cross busy intersections. In many instances, you'll find the Fire Police utilizing a regular fire frequency.

Does your town have a large freight or commuter rail system? If so, check out the railroad police frequencies. The rail police operate in a manner that is nearly identical to your local police. They have radio dispatchers, patrol cars, and foot patrols. The job of the rail police is to protect commuters and rail equipment. On mischief night, they will be especially watchful for acts of vandalism. To

Table 1

| | |
|-----------|-----------------------------|
| 30-50 | Civilian & Gov't Low Band |
| 50-54 | Ham band (6 meters) |
| 54-72 | TV channels 2-4 |
| 72-76 | Paging, repeater links |
| 76-78 | TV Channels 5-6 |
| 88-108 | FM broadcast |
| 108-136 | Civilian aircraft VHF |
| 136-138 | Weather satellites |
| 138-144 | Military aircraft VHF |
| 144-148 | Ham band (2 meters) |
| 148-150.8 | Military bases |
| 150.8-174 | Civilian & Gov't high band |
| 174-216 | TV channels 7-13 |
| 216-220 | Inland waterway navigation |
| 220-225 | Land Mobile/Ham (shared) |
| 225-400 | Military aircraft UHF |
| 400-406 | Weather balloons, telemetry |
| 406-420 | Federal govt. land mobile |
| 450-512 | Civilian UHF band |
| 512-806 | TV channels UHF |
| 806-960 | Cellular, microwave mobile |



Around Halloween, local agencies beef up security and prepare for the worst. If you've never tried monitoring Mischief Night, don't miss the action this year.

find the frequencies for your area, use a frequency directory such as *Police Call*.

Another good monitoring source is the cordless phone band: 46.610 to 47.00 megahertz. Listen in a few days prior to mischief night. Local teenagers will often discuss and plan their mischief night activities on the telephone.

Don't forget about the state and sheriff frequencies in addition to monitoring your local police. Here in the Philadelphia area, vandals have obstructed highways, removed road signs and opened fire hydrants. If it happens in your area, there won't be time to look up specific frequencies. Plan ahead, and have them ready.

Another area to consider is your utility company frequencies. During emergency situations, the services provided by gas, electrical, and water companies can easily be monitored. Keep in mind that large utility companies will usually have a separate emergency frequency. Again, you can find utility company frequencies by looking in a frequency directory for your area.

As the action unfolds, don't forget to keep a running account in your frequency log book. You may also want to track all the trouble on a local map of your city. When the police dispatcher gives the location of a call, mark it on your map. By the end of the night, you'll be able to identify the hottest frequencies, and all the locations that required police assistance. This information can then be stored and used as a reference source for the following year.

Monitoring the action on mischief night and Halloween can be real entertainment. Hopefully, the pranksters in your area will limit their activity to innocently soaping a window or ringing a few door bells. Have fun!

Treasure Hunt

As we all know, baby monitors and wireless intercoms have the ability to broadcast our private conversations across the air. Since there's no way to control or limit third party eavesdropping, most scanner buffs are reluctant to utilize the convenience of these cleverly disguised radio transmitters.

Realizing that there was a real need for a secure intercom system, the folks at Midland produced a state of the art intercom that utilizes the AC power wiring in your home. Unlike conventional AC intercoms that are plagued by poor performance and noise, the Midland 72-021/022 operates efficiently and quietly. To reduce the possibility of noise in the unit, Midland uses FM circuitry that is filtered by an additional noise reduction circuit.

Since the 72-021/022 is voice activated, it can also be used as a room

monitor. To use this feature, you simply touch the "auto" button. Any sound produced in the area will be transmitted to another unit. And here's the best part: The 72-021/022 contains an automatic squelch system—in between calls, there's complete silence.

Need more than one channel? No problem. The 72-021/022 features three separate channels. With four units installed in your home or office, you could easily talk to three individuals with complete privacy.

To win a set of midland intercoms, simply answer the following clues:

1. What are the *MT* convention dates?
2. Look in the July 91 issue of *MT*, and provide the price of a "Hickock 5700."
3. The Bearcat BC760XLT can monitor the military aircraft band. True or False?
4. Look in the July 91 issue of *MT*, and provide the radio station calls letters of Scott Lovett and Scott Gallagher.
5. Check out Optoelectronics, and provide the price for the new "2300."

If you want to win the Midland Intercom, you'd better hurry. The contest ends on October 31. In the November issue, we'll start a new Treasure Hunt with a new prize. Send your answers to the "Treasure Hunt," P.O. Box 98, Brasstown, NC 28902.

Frequency Exchange

We begin this month's Frequency Exchange in **Santa Ana, California.**

| <u>Santa Ana Police</u> | <u>Central Orange Co. Fire</u> |
|--------------------------------|--------------------------------|
| 460.200 Car to car | 856.4625 857.9625 |
| 460.475 Dispatch | 858.7125 858.9625 |
| 855.2125 Mobile data terminals | 859.7125 860.7125 |

Orange Co. Marshal
506.8625
509.6125

| <u>Santa Ana Miscellaneous</u> | <u>California Highway Patrol</u> |
|--------------------------------|----------------------------------|
| 151.430 Fish & Game 42.160 | Purple (mobile) |
| 155.175 School District | 42.180 Blue (mobile) |
| 451.200 Water Department | 42.340 Base |
| 453.700 Local Government | 42.400 Base |
| 506.3875 Street Department | 154.905 Mobile Extenders |

The above frequencies were submitted by Gary Sanders. In return, can anyone provide Gary with a list of frequencies for Tucson, or Mesa, Arizona? If so, send your name and address to the Frequency Exchange, and I'll put you in touch with Gary. Here's the address: Frequency Exchange, P.O. Box 98, Brasstown, NC 28902.

Since we're already in California, let's travel north to **Sonoma and Marin County**, (North of San Francisco). The sender, who wishes to remain anonymous, claims that this is the most accurate list to date.

| | |
|---------|--|
| 42.660 | California Highway Patrol (Orange) |
| 42.880 | CHP Santa Rosa Base |
| 44.720 | Coastal Park Rangers, "Russian River." |
| 154.100 | Rohnert Park Police |
| 154.845 | Sebastopol Police |
| 155.070 | Petaluma Police |
| 155.595 | Petaluma Police Tac #2 |
| 453.050 | Santa Rosa Police |
| 453.400 | Sonoma Sheriff |
| 453.575 | Sonoma Sheriff |

Would anyone care to visit **Utah**? Ernest Heyburne lives in **Cedar**

GUIDE TO FACSIMILE STATIONS

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The recording of FAX stations on LW and SW and the reception of meteorological satellites are fascinating fields of radio monitoring. State-of-the-art hardware and software connects a radio receiver directly to a laser printer. The result is press photos, satellite pictures and weather charts in top quality.

The new edition of our FAX GUIDE contains not only the usual up-to-date frequency lists and transmission schedules, including those of all US Air Force, US Coast Guard and US Navy stations worldwide. It informs you particularly about new FAX converters and programs on the market, and includes the most comprehensive international survey of the "products" of weather satellites and FAX stations from all over the world. 312 sample charts and pictures were recorded in 1990 and 1991. Here are that special charts for aeronautical and maritime navigation, the agriculture and the military, barographic soundings, climatological analyses, and long-term forecasts, which are available nowhere else.

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City, and here are his favorite military air frequencies:

| | |
|---------|-----------------------|
| 228.200 | Nellis Air Force Base |
| 238.000 | " |
| 238.700 | " |
| 252.800 | " |
| 254.400 | " |
| 255.800 | Aircraft weather |
| 267.900 | Air to air |
| 276.400 | Nellis control |
| 301.700 | Clover control |
| 308.600 | Sally control |
| 338.700 | Nellis tactical |

While you were busy checking out the frequencies for Nellis AFB, I got us a free military flight to **Grand Forks, North Dakota**. To help make everyone feel at home, Greg Putrich has provided over 360 frequencies.

| | |
|---------|-------------------------------------|
| 30.840 | Kentucky Fried Chicken |
| 30.840 | Taco Bell |
| 35.020 | McDonalds |
| 138.325 | Grand Forks Air Force Base Paging |
| 138.500 | GFAFB Ace net |
| 148.075 | " Commanders net |
| 148.500 | " Missile Channel #1 repeater input |
| 149.475 | " Weapons storage security |
| 150.025 | " Security units |
| 150.150 | " Missile convoy |
| 150.815 | Demeis Interstate Amoco |

| | |
|---------|-----------------------------------|
| 150.935 | AAA road service |
| 153.125 | Red River cement |
| 159.495 | Brinks Armored Car |
| 407.375 | GFAFB Backbone missile channel #1 |
| 407.450 | Commanders net |
| 453.00 | Herald newspaper |
| 463.600 | Columbia Mall Security |

As you can see, Greg covers everything from Kentucky Fried Chicken to the Commanders net at Grand Forks Air Force Base. If you want the complete list, send \$2.00 dollars with a #10 SASE to, Frequency Exchange, P.O. Box 98, Brasstown, NC 28902. This offer is only good until November 15, 1991. Hurry, get 'em while they're hot!

Our final stop will be Plymouth County, Massachusetts. An anonymous reader sent in the following list:

Plymouth County

| | |
|----------|--------------------------------|
| 482.4625 | Plympton City Police |
| 482.5625 | Marshfield Police |
| 482.7875 | Pembroke/Hanson/Halifax Police |
| 482.9875 | Cohasset/Hull/Scituate Police |

Barnstable County Police (Cape Cod)

| | |
|----------|--------------------|
| 155.640 | Provincetown/Truro |
| 155.050 | Yarmouth |
| 155.955 | Dennis |
| 155.970 | Barnstable/Hyannis |
| 851.1625 | Bourne |
| 851.3875 | Henry |

State Police

| | |
|-------|-------------------|
| 42.38 | Speed enforcement |
| 42.42 | Investigators |
| 42.44 | Tactical |
| 42.54 | Base |
| 44.90 | Auto theft |

That wraps it up for this month. If you want the Frequency Exchange to visit your area, send your favorite frequencies to; Frequency Exchange, P.O. Box 98, Brasstown, NC 28902.

Cloud Formations

In the July and August Issues of *MT*, we gave away a complete Weather Station by Digitar. The fourth clue asked for the four basic cloud

formations. The correct answer (I thought) was; cirrus, cumulus, nimbus, stratus. However, a lot of people couldn't believe that it could be that easy. A case in point, is the following excerpt from a letter sent to me from a group of meteorologists in Winnipeg, Canada.

"According to the *International Cloud Atlas*, published in 1956 by the World Meteorological Organization, clouds can be grouped into a limited number of characteristic forms. These forms are classified in terms of 'genera', 'species' and 'varieties'."

"Clouds may fall into one of ten different genera: cirrus, cirrocumulus, cirrostratus, altocumulus, altostratus, nimbostratus, stratocumulus, stratus, cumulus, and cumulonimbus."

"Based on different arrangements in the cloud elements and transparency, the ten genera are divided into varieties. Furthermore, peculiarities in the shape of clouds and differences in their internal structure may also divide the ten genera into species."

"On a more general note, clouds can be roughly divided into those that possess a strato form, and those that possess a convective form."

I don't know about you guys, but now I'm really confused. If you feel the same way, don't worry. I marked #4 correct—no matter how you answered.

Cellular Headache

The Mayor of Scranton, Pennsylvania, accused his city workers of loafing on the job. To prove his point, he video taped city workers allegedly taking unauthorized breaks in public places.

City workers responded by obtaining a tape recording of the Mayor's cellular phone calls. The tapes are reported to contain conversations between the mayor and other city officials.

According to city workers, the recordings reveal the Mayor's negative sentiments toward city employees. A court injunction has temporarily blocked the city union from playing the tapes publicly, according to the news clipping from Anthony Ingargiola of Dunmore, PA. Stay tuned for further details!

Cordless Headache

In the state of Washington, two teenagers were talking on a cordless phone. A scanner buff determined that the two youths were talking about burglary. He taped the conversation, and later gave it to the local police. Armed with the information from the tape, the police got a search warrant. The two young men were arrested when the police found stolen items in their apartment.

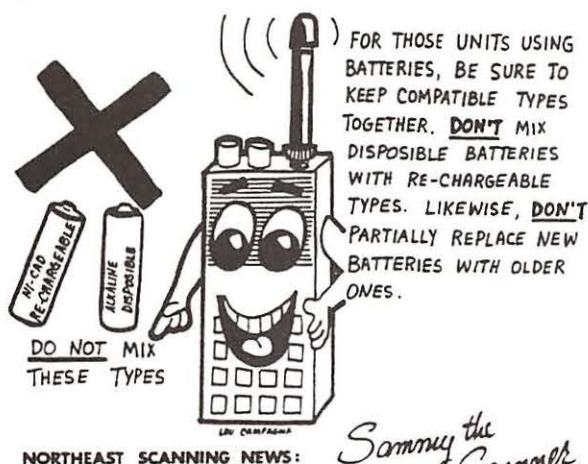
A defense attorney representing the youths contends that the evidence was gathered in an illegal invasion of privacy—the taping of a cordless phone conversation. The prosecuting attorney says that the case may end up in the State Supreme Court. Again, stay tuned for more details.

Football Scanning

I'm always looking for verified frequencies used between the quarterback and the coach. In the meantime, here's a list of frequencies that are used by ABC sports:

| | | | |
|---------|---------------------|---------|--------------------------|
| 161.640 | VHF Handi Talkies | 455.962 | Interrupt Frequency |
| 161.760 | " | 450.412 | Director to blimp camera |
| 450.962 | Interrupt Frequency | | |

If you've got a list of football frequencies not covered in this month's feature story, why not share them with other *MT* readers? Send your sport frequencies to the Scanning Report, P.O. Box 98, Brasstown, NC 28902. See you in November.



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| UA502A | 12.99 | GRE9001 | 89.99 |
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| BP70 | 16.99 | FBE | 4.00 |
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UNIDEN BEARCAT BC-400XLT



\$99.99

(\$7.00 shipping)

Our best selling mobile scanner, 16 channel, AC/DC, programmable, digital, AC/DC cords, telescopic antenna, mobile mounting bracket, weather search, priority, 29-54 MHz, 136-174 MHz, 406-512 MHz, external speaker and antenna jack

BEARCAT BC-100XLT

100 Channel Digital
Programmable
Hand-Held Scanner

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Our best price ever on a full featured complete package hand-held scanner. Manufactured by Uniden. Features include 11 bands of weather, aircraft, public service, trains, marine, plus more (29-54 MHz, 118-174 MHz, 406-512 MHz), 10 channel banks, 10 priority channels, lighted LCD display, earphone jack, channel lockout, AC/DC operation, scans 15 channels per second, track tuning. Special package deal includes following accessories: AC adapter/charger, rechargeable Ni-Cad battery pack, flexible rubber antenna, carry case.

SANGEAN ATS-803A SHORT WAVE RECEIVER

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AM/FM/LW and 12 shortwave bands plus FM stereo, BFO for SSB reception, clock radio. Includes AC adapter, telescopic antenna, stereo headphones, and shoulder strap.

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| Grundig Cosmopolit | 198.99 | (7.00) |
| Grundig Yacht Boy 230 | 149.99 | (5.00) |
| World Radio & TV Handbook (1991) | 18.99 | (*) |

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SR-901

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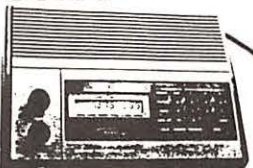
(Plus \$6.00 Shipping Each)

\$69.99 (2 or more)

Features include: 10 programmable channels, one touch memory programming, external speaker jack, 29-54 MHz, 136-174 MHz, 400-512 MHz, squelch, lockout, full frequency digital readout, AC or DC operation, retains memory up to 3 days without power, scan button. Includes AC adapter, telescopic antenna, and complete operating instructions. Size: 7 1/4" W x 2" H x 7 1/4" D. One year factory warranty. (Optional mobile cigarette lighter cord #901MPC \$4.99)

Regency R3020

\$96.99 (\$7.00 Shipping)



20 channel digital programmable scanner, frequency coverage 29-54 MHz, 108-136 MHz aircraft, 136-174 MHz, 406-512 MHz. Features: weather key, search, lockout, priority, squelch, AC only, delay button. Size 9 1/2" x 2 3/8" x 7".

(Limited Quantity of R3020 Available)

UNIDEN BEARCAT BC-950 XLT



\$249.99 (\$7.00 shipping)

Digital Programmable
100 Channel Scanner

BC-950 XLT covers the following frequencies: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-954 MHz (excludes cellular). Features compact size of 6-5/16" Wx1-5/8" Hx7-3/8", scan delay, priority, memory backup, channel lockout, bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket supplied, one year factory warranty, search, direct channel access, track tuning, service search including preprogrammed frequencies by pushing a single button for police fire/emergency, aircraft, weather, and marine services plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only \$34.99 plus a CTCSS tone board is available for only \$59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #950 MPC \$4.99

REGENCY R-4010 \$106.99

(\$7.00 shipping each)

10 channel hand-held scanner. (Same Scanner as Bearcat 55XLT), 29-54 MHz, 136-174 MHz, 406-512 MHz, digital programmable, keyboard lock switch, lockout, includes rubber flex antenna. (Optional accessory 5W-41, only \$19.99 includes rechargeable Ni-Cad batteries, AC adapter/charger and cigarette lighter cord.)

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Small size 6" Hx1" Dx2 3/4" W. Full digital readout, priority, search, channel lockout, scan delay, key lock. Covers following frequencies: 29-54 MHz, 136-174 MHz, 406-512 MHz. Package includes rubber antenna, rechargeable Ni-Cad battery pack. AC adapter/charger and vinyl carry-case.

Optional Cigarette Lighter Cord #UA502 **\$12.99**

Heavy-Duty Leather Carry Case #CC002 **\$22.99**

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what's new?

Larry Miller



Radio Shack Pro-41 Scanner

The new Realistic PRO-41 10 Channel Direct entry Programmable Scanner is now available at your local Radio Shack store. The PRO-41 is a handheld that features 29 to 54 MHz (VHF-Lo, 6-meter ham band); 137-174 MHz (government, 2-meter ham band, VHF-Hi) and 406-512 MHz (Ham radio, government, UHF-Lo, UHF-Hi) frequency coverage.

Programmed channels are scanned at a rate of 10 channels per second. Frequencies are displayed on an easy-to-read, backlit liquid-crystal display. A lock-out feature skips over unprogrammed channels and a built-in memory back-up retains stored channels for up to 30 minutes without battery. A low battery is indicated by an audible alarm.

The PRO-41 measures 7 x 2.6 x 1.4 inches and weighs 11.2 ounces. It comes with a belt clip,

detachable flex antenna, BNC antenna jack and a jack for connecting optional power adapters. Retail price is \$119.95.

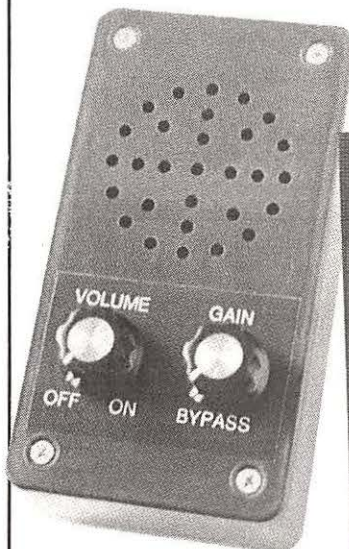


New ICOM 25 - 905 MHz Handhelds

ICOM America, Inc. has released two new handhelds with full 25 to 905 MHz coverage. Their suggested retail price is \$599.00. The IC-2SRA and the IC-4SRA both incorporate a frequency monitoring system that allows you to scan memory channels (96 in all), the complete frequency band, specific parts of the band and priority channels.

It's interesting to note that these handhelds are also transmitters — the ICOM IC-2SRA is a 144 MHz transceiver; the IC-4SRA operates on 440 MHz.

Both units weigh only 13.6 ounces and measure only 2.1" w x 5.3" h x 1/4" d. For more information on these two radios, visit your local ICOM dealer or call one of the advertisers in *Monitoring Times*.



Digital Scrambler Silencer

The police know that you're listening to their transmissions. That's why some of them are trying to get the public safety bands deleted from your scanner. Until then, many of them will use scrambling to make it impossible for scanner listeners to understand things they *really* don't want you to hear.

And as long as police departments have been using scrambling, scanner listeners have had to put up with the annoying static-like noise produced by DES/DVP or

SECURENET digital scrambling.

Now Leisure Electronics introduces the Digital Scrambler Silencer, a device that eliminates this noise. Featuring a "gain" control, the Digital Scrambler Silencer works on all popular brands of scanner under a wide range of signal conditions.

The Digital Silencer Scrambler is available in two models, the DSS8 for home use and the DSS8M for mobile use. Both retail for \$49.95 plus \$3.00 shipping and handling and are available from P.O. Box 5582, Manchester, New Hampshire 03108-5582.



New Opto Frequency Counter

Optoelectronics has released yet another in their extensive line of frequency counters. The new model 2810 is a fast, high-resolution instrument that operates from sub-audio (10 Hz) to 3000 MHz. The '2810 works quickly, too, identifying frequencies in as little as 1 second. Lightweight, it's a mere 15 ounces in a 5.3 x 3.9 x 1.4 inch package.

The Optoelectronics 2810 is priced at \$259.00. An optional LCD backlight for night use is an extra \$45.00 and an extra NiCad battery pack that extends operation time to four hours, is \$24.00. For more information, call 1-800-327-5912.



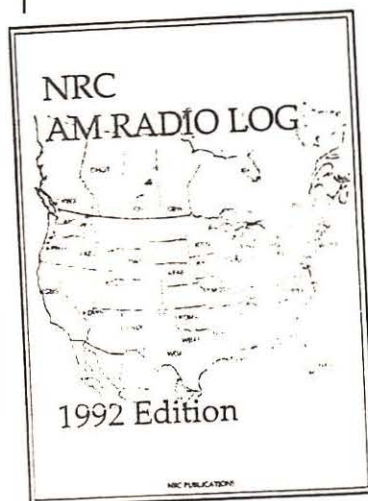
Bug Detector

It's a spooky world. The electronics revolution has taken spying out of the international arena and put it squarely in the living rooms and offices of America. According to experts, the possibility that your home or office is bugged is greater than ever before.

Ross Engineering aims to help those with such "insect" problems and has introduced the DEX 017, a Bug Detection System that the manufacturer

claims can "positively identify a radio transmitter being used as a room bug." Proper operation of the device is easy and it is the simplest system which gives a "non-ambiguous answer" in the radio bug detection process.

For more information on the DEX 017, contact Ross Engineering at 703-318-8600 or write 44880 Falcon Place, #198, Sterling, Virginia 22170.



NRC AM Radio Log

The National Radio Club's *AM Log Book* has become the bible of those who enjoy the challenge of AM broadcast band DXing.

The new 1992 edition of this popular annual contains nearly 350 8-1/2 x 11" pages, each crammed with data on AM radio stations in the United States and Canada. That's nearly 6,000 stations, and each listing contains information pinpointing its location and address, frequency, call letters, format, news network, even station slogans, day and night transmitter powers and more. Information is arranged by frequency with a special cross reference by call letter that's helpful in identifying those weak signals.

The NRC AM Radio Log is

available for \$19.95 plus 1.70 USPS or 3.10 UPS from DX Radio Supply, Box 360, Wagontown, PA 19376 or direct from NRC Publications, P.O. Box 164 Mannsville, NY 13661.

900 MHz Cordless Phone

Hello Direct, a firm that specializes in telephone-oriented hardware, has introduced what it says is "the first cordless headset for business telephones." What makes the device interesting is that it operates on the new 900 MHz band.

Some notable quotes from the catalogue that seem to be attributed to the selection of 900 MHz frequencies include statements like "You'll be amazed at the reception you get, even 50 feet away from your

desk"; that "You'll benefit with improved security..."; and that there is "a huge reduction in interference from other radio devices."

The comment about reception is interesting; 50 feet isn't very far. Perhaps that's why users will benefit with improved security — no one will be able to monitor its apparently low-powered transmitter. In light of the "interference" comment, it's interesting to note that the 900 MHz band is, to the

PC + M1000 = SW Excitement

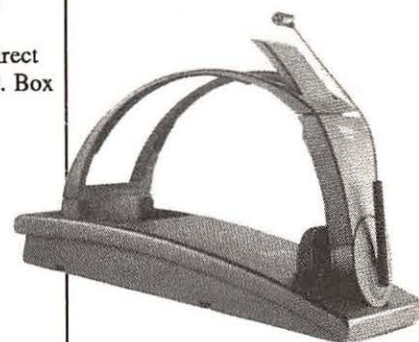


Turn your IBM computer (or clone) into a powerful intercept device! The **Universal M-1000** Decoder Card requires just one slot in your PC. Your computer can open up a new world of listening (and seeing) opportunities! You can decode standard modes such as Morse Code, Baudot RTTY and Sitor A/B. Advanced diplo.-military modes such as ARQ-M2, ARQ-E and ARQ-E3 are also supported. ASCII and Packet modes are even featured. For FAX reception (only) your computer must have either an EGA or VGA monitor (color or mono). The video quality of your FAX intercepts will amaze you. Advanced FAX imaging includes false-color and zoom features. FAX images as well as text traffic can be saved to disk for later retrieval or analysis. Despite the sophistication of this device, operation is easy through on-screen menus, status indicators and help windows. A new *datascope* feature operates in both RTTY and FAX modes. The M-1000 comes with an informative manual and software on both 3 1/2" and 5 1/4" diskettes. **Only \$399.95 (+\$5).**

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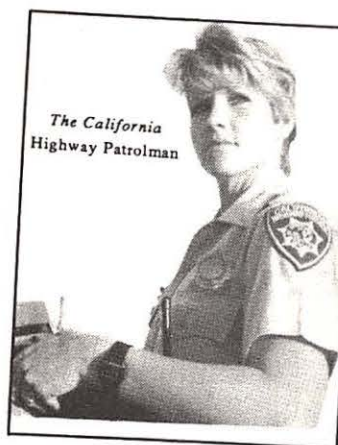
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The Hello Direct Cordless Headset is available for \$399 from 1-800-HI-HELLO.



Real Life Cops

Every month, the California Association of Highway Patrolmen publishes a magazine called *The California Highway Patrolman*. Each issue contains a number of feature stories, most of which are not, it seems, related to law enforcement (July 1991: "Old Glory: Prouder Than Ever," "Health Clubs — Check 'em Out," "Merchant Marines in WWII — And After," etc.) That's not a put-down; just an observation.

One section of the magazine makes it all worthwhile, though. Called "Routine Stops," it is a collection of real-life events as written by CHiP Officers. The stories range from the bone-chilling (chasing a suspect who is careening through residential streets at 70 miles an hour in a vehicle with no front tire) to the unreal (a man who offered to sell drugs to some CHiP Officers in order to raise money to pay his DUI fines).

Interspersed through the magazine are dozens of one- and two-shot pictorials. These,

however, are the shots that don't make the newspapers. Hideously twisted wreckage of vehicles. Raw, unsanitized pictures of bodies crushed under cars, blood pooling nearby.

For those of us who monitor the public safety bands but who do not work in "the business," *The California Highway Patrolman* will be a real eye-opener. At very least, you'll be sure to wear your seatbelt the next time you get in the car. *The California Highway Patrolman* is \$15.00 a year from 2030 V Street, Sacramento, California 95818.

Radio Magazine

If there was an international award for mimicry, it would have to go to the new shortwave monthly, *Radio Magazine*. *Radio Magazine*, which is edited by a Malaysian and published by a German, looks suspiciously like Glenn Hauser's *DX Listening Digest*.

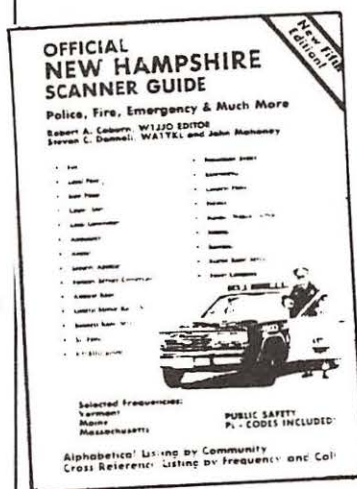
The magazine is a compendium of shortwave broadcast news and frequencies. What's embarrassing is that the information is arranged just like Hauser's publication. It's also written like Hauser's, presents pretty much the same DX news as Hauser and uses pretty much the same sources as Hauser. No doubt about it, the big guy had a lot of influence on the staff of *Radio Magazine*.

Anyone can replicate someone else's publication. For the most part, there's no legal remedy against that. It is, after all, a free world. But that doesn't mean we have to admire people who trade on it. Aside from providing a single page of "Ham Radio News," *Radio Magazine* does little more than ape Hauser and that's not a good enough reason to spend US\$45.00 a year.

Incidentally, *Radio Magazine* does guarantee "at least 32 pages" in English each month. If

you'd like to subscribe, you can wire your fee to Postfirokonto Hannover 942 01 - 306 or you can write to Rainer Pinkau, Kurzwellen - Pressedienst, Weender Str. 30, D-3400 Gottingen, Germany.

Hauser's *DX Listening Digest* costs \$25.00 for 10 issues from Box 1684, Enid, Oklahoma 73702.



New Hampshire Frequency Guide

The presses are rolling again at the offices of "Official Scanner Guide" and this time the result is another excellent frequency directory. This time the focus is on the State of New Hampshire.

Editor Robert Coburn has expanded this revised 5th edition to include some 9,000 listings. Divided into three main sections, the heart of the book is a listing of frequencies arranged by community (which includes the service, licensee, call sign, frequency and comments). Another section is arranged by frequency to aid in identifying what you hear.

The *Official New Hampshire Scanner Guide* is highly recommended and is available for \$17.95 plus \$3.05 shipping and handling from P.O. Box 712, Londonderry, New Hampshire 03053.

RNI Catalogue

It's billed as the catalogue "from the people who brought you the ship." "The ship," of course, is Al Weiner's Sara and RNI is "Radio New York International."

In any case, RNI has put out a catalogue of used electronic equipment that runs the gamut from antique radios, transmitting and military surplus equipment to tape recorders, voltmeters and RTTY distortion measuring sets. The company also offers an electronics repair shop specializing in antique radio and TV restoration.

For more information, call 914-423-6638 or write RNI Electronics, 14 Prospect Drive, Yonkers, NY 10705.

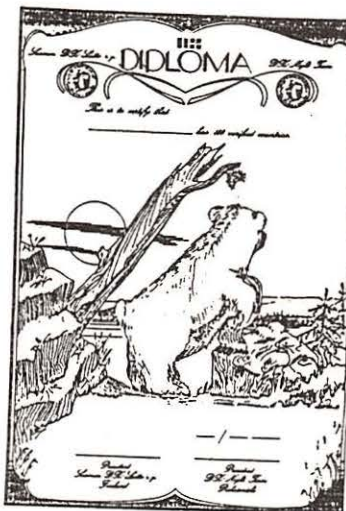


In Time For Christmas

DX Radio Supply has released their revised fall/winter book catalogue, just in time to help the families of radio enthusiasts with their Christmas

shopping chores. DX Radio Supply is a family-run business devoted solely to literature on radio monitoring — it carries no equipment. As a result, it provides a good selection, quick, same-day shipment and competitive prices.

To get a copy of the catalogue, send one quarter to DX Radio Supply, Box 360, Wagontown, PA 19376.



DX Diploma

A pair of little-known radio monitoring groups have combined to offer the world's DXers a DX Diploma from Finland.

Sponsored by the Finnish DX Association and the DX-Night Team, the diplomas can be earned in three categories — for 50 countries verified, 100 countries verified and 150 verified countries. While the diplomas are printed on "a special paper," all three have the same picture — but are different colors.

All that is required to earn the diploma is to send a list of your verified countries (the instructions state that you must include the station's name and frequencies) and 8 IRCs (50 countries), 10 IRCs (100 countries) or 12 IRCs (150 countries) to Reijo Laitinen.

His address is Mantytie 13, SF-76940 Nienonpelto, Finland.

Amateur and utility stations do not count toward your totals.

Publication Folds

One of several new radio classified publications has run into trouble. *Classified Radio*, the Jonesboro, Georgia-based radio equipment swap sheet, has ceased publication. The magazine, which offered a toll-free ad line, free samples and a "you don't pay until the item sells" classified ad policy, was well-conceived and operated but failed to garner sufficient support from the public. Refunds will reportedly be issued to subscribers.

RADIO 101 PRESENTS
A Once-and-For-All Definitive Cure for Computer RFI!
by Tom Kashuba

The Electronic Quagmire
If you are a radio enthusiast, you know that the world of radio is a vast and complex one. It is a world of many different types of radio, from the simple AM radio to the sophisticated FM radio. It is a world of many different types of equipment, from the simple radio to the sophisticated radio. It is a world of many different types of people, from the simple radio enthusiast to the sophisticated radio enthusiast. It is a world of many different types of things, from the simple radio to the sophisticated radio. It is a world of many different types of places, from the simple radio to the sophisticated radio. It is a world of many different types of times, from the simple radio to the sophisticated radio. It is a world of many different types of people, from the simple radio enthusiast to the sophisticated radio enthusiast. It is a world of many different types of things, from the simple radio to the sophisticated radio. It is a world of many different types of places, from the simple radio to the sophisticated radio. It is a world of many different types of times, from the simple radio to the sophisticated radio.

Beginner Shorts

Moonbeam Press and The Radio Collection are two commercial ventures involving one-time MT "numbers" columnist, Havana Moon. The Radio Collection publishes, among other things, a series of 8-to-12-page introductory pamphlets known collectively as "Radio 101."

These feature-length publications cover basic hobby information and retail for \$4.99 each, shipping included. The most recent topic is "The Once-and-for-All Definitive Cure to Computer RFI."

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| AR-2500 Scanner | \$ 455 |
| Kenwood R-5000 | \$ 850 |
| AR-3000 Scanner | \$ 890 |
| Japan Radio NRD-535 | CALL |
| ICOM R-71A HF Scanning Receiver | \$ 850 |
| Collins R390A (Reconditioned/Calibrated) | CALL |
| Japan Radio NRD-525 | \$ 1125 |
| SONY ICF-2010 | \$ 349 |
| SONY ICF-7600 | \$ 220 |
| SONY Pro-80 | \$ 370 |
| RACAL RA-6790 (GM)/R-2174 | CALL |
| Bearcat BC-760XLT - w/Cellular Restoration | \$ 275 |
| Bearcat BC-200XLT - w/Cellular Restoration | \$ 275 |

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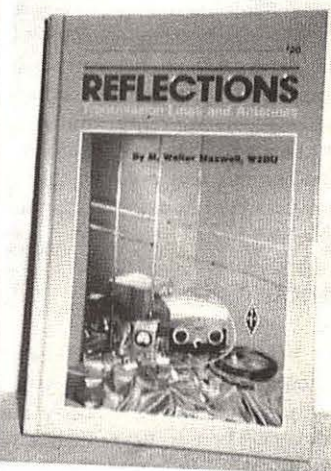
If you want a complete list of titles as well as a catalogue of various other ventures, send one dollar to Radio Collection, P.O. Box 149, Briarcliff Manor, NY 10510.

Antenna Book

While many antenna books have appeared on the market for the home building enthusiast, few cover the details of why antennas and transmission lines work the way they do.

Maxwell's new publication, *Reflections—Transmission Lines and Antennas*, in considerable detail, discusses SWR, impedance, transmatches, the Smith Chart, and basic antenna theory. It isn't for the faint of heart, however; some mathematical background and radio theory is required.

But the book is rich in facts and profusely illustrated. For the antenna connoisseur who thinks he



knows everything, read a little more!

Reflections is \$20 plus shipping from CQ Book Shop, Greenville, NH 03048 or from the publisher, American Radio Relay League, 226 Main St., Newington, CT 06111.

Are You Being Served?

It may never appear in any fancy record book, but I maintain that Old Uncle Skip holds the World's Record for fastest voiding of the warranty on a piece of electronic equipment.

Back in 1980 or so, I was very involved in building equipment for AM Broadcast Band DXing. In those days, a neat piece of gear to play with was the Radio Shack "Realistic" Model 655 TRF receiver. This was a portable AM radio with a hot and highly modifiable front end.

Like most pieces of electronic effluvia, this receiver came with that famous phrase molded into the plastic back:

"No User Serviceable Parts Inside—Refer Servicing to Qualified Service Personnel—Do Not Remove Back."

Well anyway, while the salesperson was busy writing up the sales slip and was about to ask me all those annoying personal questions that Radio Shack stores demand of their clientele, I had already used my trusty Swiss Army knife to strip off the back of the rig and clip out two capacitors that I planned to replace with ceramic filters. Why waste any time, right?

Now, as a newcomer to the radio ranks, you may not feel comfortable with sending Radio Shack employees into mindlock by taking your equipment apart on top of their glass case. When you purchase your receiver or accessory, you will probably be more concerned with the quality and quantity of service that your hard earned dollars provide.

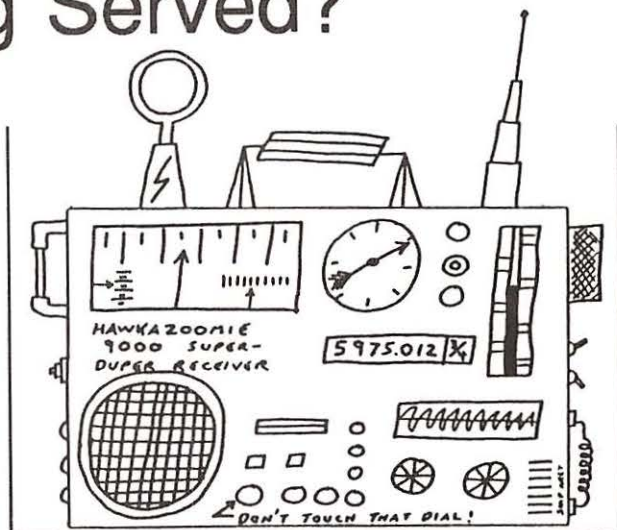
Even the best engineered piece of equipment has the potential to become a defective piece of equipment (Murphy was an optimist). Instead of voiding your warranty, you will be looking for it to open the door to a restored receiver. With that in mind, why don't we take a look at a few notions about how to get that service after the sale?

Know Your Seller

Whenever possible, Old Uncle Skip strongly recommends that you buy your radio hobby equipment from radio hobby businesses. The advantage here is that radio hobby dealers have usually put more research into the equipment they carry than how much profit they can make per unit of sale. Also, radio hobby dealers often have service departments specifically dedicated to the repair of radios as opposed to one radio sandwiched between every two hundred or so VCRs.

Know Your Warranty

Actually the "Warranty" went the way of the Dinosaur, the Dodo and the DX 160. What you



Even great radios can break down.

get in these litigious days is something called a "Limited Warranty." As the name implies, it spells out the limits of your relationship and any expected service.

Don't let this concept scare you away, Bunkey. If you carefully read your warranty documentation you will also learn the best way to assure prompt service. You will learn if you must return your equipment to the manufacturer for service or if you can take your broken box to a more convenient Authorized Repair Service. You may also discover that the manufacturer provides some sort of Technical Service Hot Line that gives you good advice that can save you a trip to the service center.

In addition to the basic manufacturer's warranty, many equipment dealers offer additional warranty "extension" services. These can take the form of either an increased period of service coverage provided through the service department of the aforementioned dealer, or you may be offered the opportunity to purchase a service contract that extends the guaranteed service past the initial limits of the manufacturers limited warranty.

The dealer warranty extension is a neat bonus that usually has very few strings attached. However, service contracts can be full of loopholes. You can pay big money to extend the service on your gear only to find in the fine print that the parts most likely to fail are NOT covered and will be replaced only at additional cost (often at premium rates). Many service contracts are simply profit makers for the point of sale folks. Read service contracts very carefully. You might even want to call several local service outlets and find out what service costs might be as opposed to what you will be expected to pay for a service contract. Don't be too surprised if you find out you can get along just fine without the service contract.

Another thing to keep in mind is that many credit card companies now offer some sort of "Oops, I dropped it" replacement coverage for items purchased with their card. If this is the case, you may want to put your next radio on plastic.

Okay, you have thoroughly researched your guarantees and warranty service options and you are now the proud owner of a Hawkazoomie 9000 Super-Duper Receiver. You are at your DX desk tuning in the world service of Radio Freedonia when suddenly, the set goes dark and the speaker goes quiet. Your radio is dead on the table top... NOW WHAT???

Don't Panic

The first question you have to ask yourself is "Did I do anything wrong?" A neighbor and recent convert to the world of home computers greeted me all bleary-eyed one Saturday morning. He told me he had been up all night trying to get the floppy disk out of his disk drive. I popped over to take a look and had to tell him that the reason he could not get the disk out of his disk drive was that *there was no disk in the disk drive!* These things happen all the time. They happen even more frequently when you combine a newcomer's enthusiasm with his or her lack of expertise.

So before you go packing your radio off to the Hawkazoomie USA service center in Possumbottom, Wisconsin, take a moment or two and do a basic reality check. Look at the manual and make sure you didn't accidentally set the switch that sets the timer that sets the radio to turn on next Thursday. Look behind the bench and see if the cat kicked out the plug. A common SWL problem is that radios don't work very well if the antenna becomes disconnected. If your equipment failure involves any form of memory circuit, check the manual to see if some well hidden battery needs to be replaced.

Think of the most obvious boo boo you could possibly make and assume that you have. Half the time you will discover that operator error figures into the problem. Relax, you have the luxury of making these mistakes in the privacy of your own home where nobody has to know. The one important exception to this rule is if the equipment blows a fuse for no obvious reason. This should be discussed with your repair service to assure that the fuse problem is not masking a much larger problem.

After ruling out the obvious, look once again to the appendix of your users manual and see if it includes any troubleshooting instructions. These will help you rule out any less obvious mistakes.

If you have gone through these steps and you still have a rig that just sits there collecting dust, it is time to energize whatever warranty service system your documentation requires. Go with the flow. There are two important things you can do to facilitate prompt and successful service. The first is to provide the repair resource with the most accurate statement about the problem based upon your observations.

Secondly, return the equipment exactly as the repair service expects it to be returned. Many companies expect equipment to be returned in the original carton with all paperwork and accessories included. Some companies will even expect equipment to be returned by a specific mail or parcel service. All this information should be in your warranty and service documentation.

If your manufacturer utilizes Authorized Repair Services your task is even easier. However, I recommend calling ahead and checking before driving over. As I said earlier, why waste time?

A Variation on Murphy's Law

Things not only go wrong, they often go wrong at the worst possible time. Let's assume your receiver dies one minute past midnight on the day after the limits of your limited warranty are reached. Now what are you going to do? If you did a little pre-failure preparation you will be able to get back to listening quickly and inexpensively. The following advice also applies to those of you who have intentionally (or unintentionally) voided your warranty, like I did at the Radio Shack store.

Long before your warranty expires, you should contact the manufacturer and purchase the complete service manual for your piece of equipment. You should do this even if you never intend to attempt any repairs yourself. The full technical manual will give you a more complete understanding of your receiver and its problems. Armed with this information, you will be able to make better choices when seeking out repairs.

When the warranty is gone you have several options when seeking service.

You can contact the manufacturer or the area Authorized Repair Service and continue to seek service through them. This is usually a good choice if you keep in mind that your repairs will be performed at premium prices. By consulting the more extensive service manual, you will be able to decide if the job is something that may

Keep all original boxes & paperwork. If the day comes when you have to enact your warranty, you may be glad you did.

more local service you can "let your fingers do the walking." Check the yellow pages under the heading RADIO, RADIO COMMUNICATION EQUIPMENT, RADIO SYSTEMS, anything with the word RADIO involved. Most of the outfits you will find listed will be geared toward business radio equipment, but give them a call and see if they can work with you. Let the service person know that you have the factory service manual (if you took my advice and purchased it). A qualified radio technician should be able to turn the information in that manual into a working receiver with little trouble.

The next place in the yellow pages will be the general heading TELEVISION or TELEVISION & RADIO SERVICE & REPAIR. Pick through these folks carefully, try to find one that specifically states they work with equipment from your manufacturer.

Anyhow, try to get a few estimates so you know what you're up against. If it costs more to repair the receiver then it would cost to replace it, or if you were planning to upgrade to a more high performance piece of equipment you may want to move your money in another direction instead.

Don't forget that some of the advertisers in MT offer repair service on radio hobby equipment. You will have to ship the gear out for service, but this may be preferable to your other alternatives.

Think Positive

Sure, sometimes equipment breaks down. Nobody likes to think about this possibility. The good news is that most modern equipment works just fine and will give years of excellent service. Read MT columns such as Larry Magne's "Magne Tests ..." and you will learn to steer clear of any obviously bad equipment. If you take a few moments to follow the guidelines listed above you should be able to relax in the knowledge that, if your equipment needs to be fixed, you will get it back into business quickly and at a reasonable cost. Not even a limited warranty can make a promise like that, Compadre!



MONITORING TIMES

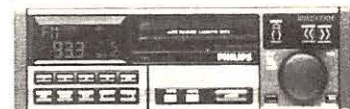
be performed by a general electronics repair service or if it may involve proprietary circuitry better left to the company's experts.

The next best service stop might be the dealer who sold you the gear in the first place. Many dealers have a reputation of repairing the equipment they sell. If not, they may be able to recommend a service center that can best meet your needs.

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Red Skies Over Iowa

Imagine driving along in America's heartland. It is a bright sparkling day. The wheat fields are golden and gently blowing in the wind. Suddenly, what sounds like an explosion rocks your car. Rattling windows for miles, the sonic boom shatters the peace of the country side. Looking up to see the source of the boom, you are surprised to see three huge parachutes lowering a small dangling capsule.

As the capsule hits the earth in a cloud of dust, you pull over to the side of the road, perplexed. Is it a spy satellite's secret payload or a visit from extraterrestrials? Cautiously you approach, feeling like part of a bad science fiction movie.

On close inspection, the capsule has a strange, round shape and is totally unlike U.S. space craft. You also notice it cannot be a satellite because this craft has windows. Strange markings in something other than English adorn the craft.

You heart beats faster as you realize a hatch is slowly opening. Stepping back, you realize you are about to have a close encounter with

extraterrestrial space travelers. A space-suited being struggles to get out of the capsule. It is apparent these space travelers are not used to earth's gravity as they struggle to stand on their feet. The visor on a helmet slowly swings open. You find yourself face to face with an alien, only this alien is more of the illegal kind. The alien in the space suit is a Soviet Cosmonaut.

Sound a little far fetched? It's not as crazy as it might seem. Since 1975, the Soviets have planned for landings in mid-America in case a space flight emergency should occur. Even through the chilliest years of the cold war, the Soviets have shown a willingness to bring cosmonauts down in U.S. territory.

Today flight directors at Soviet Mission Control located in Moscow relay daily data containing emergency landing instructions should the worst happen. Included in the emergency plans are the parameters for landing in the midwestern United States with prime sites being

west Soviet Union.

Perry said the Soyuz 33 crew repeated a list of orbits, times and landing angles that indicated contingency landing sites in the midwestern

United States. Perry noted similar landing instructions during a Mir transmission on January 25 and 27, 1988. Although most agree that a Soviet landing in the United States is remote, the Soviets

have admitted that they do calculate such emergency landing plans and relay it to their cosmonauts. There has never been any agreement or formal notification with the U.S. government. For a list of Soviet space frequencies see the accompanying table.

Strange aircraft are heard over America's test sites, but some possibilities are even stranger.

MAILBAG

The Right Stuff

• Dale Punter checks in from Lancaster, CA, with news from Aerospace Valley a.k.a. Antelope Valley and Edwards Air Force Base. The monitoring action is hot around America's premier flight test facility. Dale says the airwaves are filled with the sounds of the YF-22 advanced tactical aircraft on test flights. The YF-22 recently beat out the YF-23 in a heated competition to see which fighter prototype would become the next front-line air superiority fighter of the Air Force. Dale has monitored the YF-22 going through its paces using the callsign Lightning on the frequencies 252.400 MHz and 264.100 MHz.

Dale goes on to say that a host of flight test projects can be monitored in the valley. NASA's F/A 18 High Alpha Research Vehicle has completed its modification with the addition of thrust vectoring vanes in order to increase its high angle of attack research program. The F/A-18 HARV can be heard using the callsign NASA 840 on NASA's primary flight test frequency of 286.8 MHz.

Blackbird returns

• Additionally, Punter says there is good news for SR-71 fans. NASA's Dryden Flight Research Facility at Edwards Air Force Base is flying two SR-71s with the tail numbers of 17971 and 17980. Callsigns and frequencies have not been established yet, but Dale promises when he finds out he will send them along to us. The aircraft will be used for high speed/high altitude

SOVIET SPACE FREQUENCIES



| Frequency | Description |
|-----------|---|
| 143.625 | MIR space station voice (fm) |
| 149.910 | Soviet military NAVSAT data transmissions |
| 149.940 | Soviet military NAVSAT data transmissions |
| 149.970 | Soviet military NAVSAT data transmissions |
| 150.000 | Soviet civilian NAVSAT |
| 150.010 | A mystery Soviet satellite sending data not yet identified. |
| 150.030 | Soviet military satellite voice/data (fm) |
| 166.000 | Soviet manned space channel -data/voice also some military aircraft traffic |
| 231.500 | Soviet unmanned military space craft data (nbfm) |
| 232.000 | Soviet military spy satellite (coded data) |
| 239.500 | Soviet science satellite (data) |
| 240.000 | Soviet unmanned spacecraft (beacon) |
| 247.475 | Various Soviet spy satellite data transmissions |
| 247.500 | Soviet spacecraft (KVANT) telemetry channel (docked with MIR space station) |
| 248.000 | Soviet spy satellite (photo recon) photo FAX transmission channel. |
| 393.675 | Chinese military satellite voice/data (nbfm) |
| 399.760 | Soviet military satellite voice/data (nbfm) |
| 399.840 | Soviet military satellite voice (nbfm) |
| 399.920 | Soviet military satellite voice/data |
| 400.000 | Soviet military satellite (beacon) |
| 400.080 | Soviet military satellite voice/data (nbfm) |

Monitoring Times Graphic

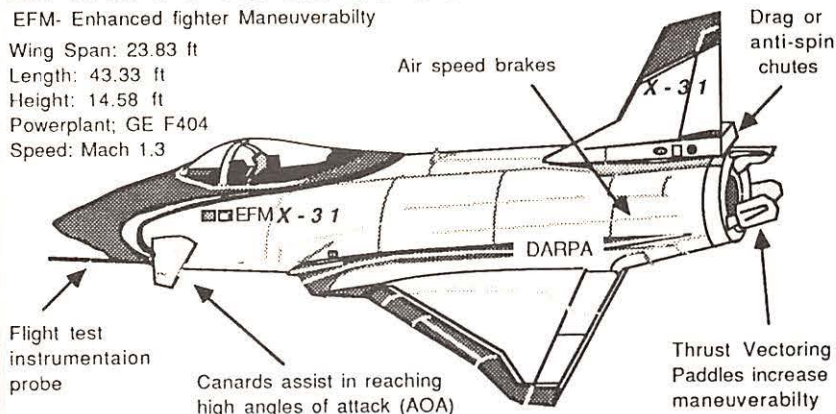
All of this was discovered by radio monitor and Soviet space program follower, Mark Severance, of Fort Worth, Texas. Mark recorded data transmissions from Soyuz 33 on April 11, 1979. The data was analyzed by Geoffrey Perry, coordinator for the famous Kettering Group in Great Britain.

The Kettering Group is an independent network of observers who have successfully tracked Soviet space flights for more than 30 years. The group is named for a British grammar school at which Geoffrey Perry once taught. Twenty-five years ago, Perry and his students, using simple radio equipment, deduced the location of the secret third Soviet launch site at Plesetsk, in the north-

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research leading to the development of the X-30 hypersonic aircraft.

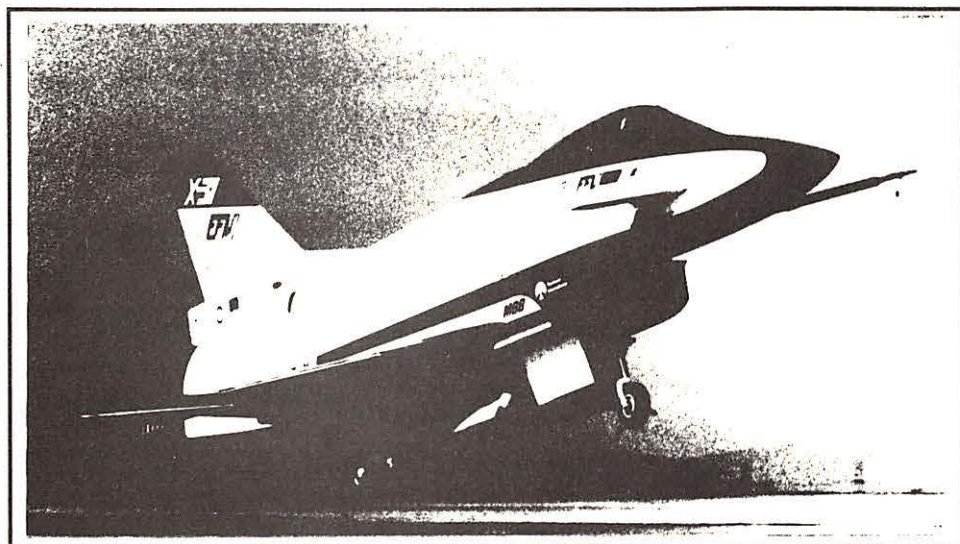
Other projects our source reports on are the test of the B-2 bomber (349.300 MHz, callsign LEAHI), the X-31 EFM (283.7 MHz, callsign VECTOR) and the AC-130U Terminator gunship (379.7 MHz, callsigns TALON/SPECTRE).

Many thanks, Dale, for excellent monitoring and for sharing it with us.

If a German air base was established in this country, it would be the first on U.S. soil since British soldiers occupied forts in the Northwest Territories before the War of 1812. Who knows, maybe soon military monitors will be able to listen in on the German Air Force as they fly exercises over our heads.

Frequency Freebie

Monitoring Times contributing writer Steve Douglass says that response to the August free military frequency list giveaway has been great. It is a great list of HF and UHF frequencies monitorable from any location nationwide, and he has a few copies left. Steve says that it is great to see so many monitors like him who share his hobby. Many of them also sent in their own lists, which he promises to share with us. If you are interested in getting the list of military frequencies, drop Steve a line and an SASE at 6303 Cornell, Amarillo, Texas 79109.

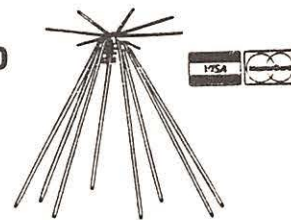


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Flying by the Book

We start off this session with a tour through some aero books.

Emergency In the Cockpit, by Stanley Stewart. This book was purported to recount emergency communications which took place during various airline-related crisis situations. Included was the Air Canada 767 whose captain actually glided it to a landing when its fuel gauges registered zero, the American Airlines DC10 which lost its cargo door shortly after taking off from Detroit, total engine failure on an Eastern L-1011, and other aviation mishaps.

Unfortunately, at least from the radio buff's standpoint, aside from the sparse recounting of some of the air/ground communications, the book doesn't have much on the technical side. What this book does have in regard to what actually did happen in the emergencies detailed is a lot of hearsay, interviews with passengers, bystanders and occasionally, the airline crews involved.

I was rather disappointed that the author, who is an airline pilot himself, would leave out so much of the communication aspect of these emergency situations and rely on a lot of Monday morning quarterbacking instead. While the illustrations contained within this book are superb, and it does contain some communications examples, don't expect anything outstanding for the publisher's price of \$24.95, unless you just want something to display on your coffee table. This book is available at most bookshops, such as Dalton's, etc.

On the lighter side, **Mayday, Mayday, Mayday: Spin Instructions Please!** had me practically rolling on the floor. Published by Aero, a division of Tab Books, this collection of aviation cartoons by Bob Stevens pokes fun at anything and everything involved in flying including communications and the various facets of air traffic control. Selling for about \$15.95 retail, it's well worth the price.

Stevens, who has long been a pilot himself, draws cartoons for both the military and civil aspects of aviation and has had many cartoon collections published. This, however, is the best one yet.

The Pilot's Air Traffic Control Handbook, by Paul E. Illman and **The Pilot's Radio Communication Handbook**, by Illman and Jay Pouzar are two outstanding books published by Tab Practical Flying Series. They are very well writ-



ten and extremely useful for monitors as well as for pilots. These books can be purchased separately or as a set, each retailing for about \$12.95.

First of all, **The Pilot's Air Traffic Control Handbook** serves as a guide, explaining to pilots and would-be pilots exactly how the ATC system works, its history, and the functions it serves. Also, there are sections relating to the appropriation of airspace, transponders, military operations areas, etc. and a section which details the functions of the International Civil Aviation Organization (ICAO).

The Pilot's Radio Communications Handbook explains how best to use the ATC system. The volume explains how the different facets of Air Traffic Control work with pilots during each phase of flight. This helps the pilot to utilize the system to his or her best advantage.

Although these guides were written with the Visual Flight Rules (VFR) pilot in mind, there are many sections in each of them that pertain to Instrument Flight Rules (IFR) flying also. Each has plenty of terminology, acronyms, abbreviations, and other sections which can really provide assistance to radio monitors in understanding what we are hearing on our scanners.

Look for these books at your local flying equipment outlet, FBO or specialty bookstore. If you can't find them in your locale, write to the publisher and ask if you can purchase them directly: Tab Books, Readers' Corner, Practical Flying Series Division, Blue Ridge Summit, Pa 17294-0850.

In The Twilight Zone

• Bob Bell, our Australian correspondent, tells of an unusual happening in his neck of the woods. Bob writes an aviation communications column called "On the Airbands" for *Australian*

Aviation Magazine. One of his contacts at Sydney Airport ATC contributed the following: It seems a rare phenomenon known as temperature inversion occurred recently, making communications on VHF possible between Sydney ATC Tower and Auckland, New Zealand, approach. They were able to hear each other on VHF over a distance of 1,200 miles on the common frequency of 120.5 MHz!

Not only were the two ATC facilities able to hear each other, but so were the aircraft working on the frequency with a readable signal of strength five. It was quite confusing for a while until controllers at both facilities were able to sort out some semblance of order on the frequency.

• To continue with our relating of strange happenings and skips in the world of aero communications, another story comes out of Australia. On April 16 of this year, Alan Muddle, Dugong, NSW, was monitoring the UHF military air frequency of 261.4 and actually heard a controller's voice advising a pilot to contact Los Angeles Center on a victor (VHF) frequency. Not only that, but on subsequent days, he monitored similar transmissions. To prove that this actually did happen, Alan sent a taping of this occurrence to me so that I could hear it with my own ears. I don't know if temperature inversion was once again involved, but either way, that's quite a catch.

Bob Bell, who also heard the tape, wondered if a frequency from the U.S. had possibly scored a ride through a U.S. military satellite, which it was never meant to uplink to. Another possibility, Bob said, could be that a cable leak or intermodulation problems near the satellite uplink equipment may have opened the door to the AM air frequency. Normally, the satellites accept NFM signals, but the air frequency passed

into the system without impedance and was clearly audible "down under."

Reader's Corner

• Late last month, Bill Battles (P.O. Box 133, East Kingston, NH 03827) told me that he had so far received 20 orders for the airline callsign list we talked about a few columns ago. For those of you who haven't ordered your copy yet, don't delay too long as, by now, supplies may be limited. I use my copy constantly when monitoring both VHF and HF aero comms and find it to be an enormous aid in identifying airlines by callsigns and code names.

• I've also had great response from those of you who ordered the aviation shareware. There will be some more available in the near future.

• Bert Hunneault attended the Kalamazoo Air Show last month and contributed the photo of a recently restored B-25 Mitchell. The restoration was done by volunteers at the Air Museum. He says it was a fantastic restoration job as it was finished in the colors and emblems of an actual Bombardment Group which saw action in the Pacific. I wish you could see it in color.

• David Eason, Maryland, found an ad in the *Washington Post* for a publication entitled the *North Atlantic International General Aviation*

Operations Manual, recently released by the FAA. It is designed to help general aviation (nonairline) pilots fly across the Atlantic. You can obtain a copy for \$2.25 by writing to: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325. Request document number 050-007-008-864.

Regional Frequencies

A few months ago we talked about the possibility of running listings of airline company frequencies on a regional basis. Over the years, many *MT* subscribers have asked us if we could do this and lately the requests have been increasing. Since your wish is our command, we are inaugurating this feature in this issue and will continue as space and material permit. This listing of airline company frequencies in the San Francisco Bay Area and surrounding cities, south to Los Angeles, was thoroughly and painstakingly compiled by Clinton R. Gilliland. While we cannot print the whole list because of space limitations, Table 1 lists excerpts to aid other monitors in that area.

As most of us know, the frequencies between 128.825 and 132.000 inclusive are licensed to ARINC (Aeronautical Radio, Inc.) who then sublease most of them to the airlines. ARINC, itself, also utilizes many of these frequencies for air/ground operations which the airlines use on a pay-per-contact basis.

Table 1

| | |
|---------|---|
| 128.85 | Japan Airlines (ARINC) conversation usually in Japanese (SFO-San Francisco International) |
| 128.875 | Singapore, Qantas (to Los Angeles) (LAX-Los Angeles Int'l) |
| 129.225 | American Airlines Maintenance, San Jose and SFO (SJC) |
| 129.4 | TWA SJC and SFO (SJC) |
| 129.425 | UPS Cargo OAK (Oakland) |
| 129.925 | Continental, SFO, SJC, OAK (SFO) |
| 130.025 | (ACARS -- Acft. Comms. and Reporting System) Data Link |
| 130.05 | Lifelight Air Ambulance, Stanford |
| 130.100 | Delta Air Lines (SFO) |
| 139.175 | America West (call sign Cactus) SJC |
| 130.4 | ARINC United SAM (Systems Area Maintenance) (SFO) |
| 130.7 | Northwest Dispatch (from Minneapolis) |
| 130.775 | Delta (Atlanta Dispatch) (SFO) |
| 131.025 | American Dispatch SJC, SFO (SJC) |
| 131.15 | USAIR SFO (SFO) |
| 131.2 | Alaska (also uses 460.825 on ground) SFO, SJC and OAK ops (SFO) |
| 131.4 | ARINC United gate info (SFO) |
| 131.575 | Air Canada SFO gate control (SFO) |
| 131.6 | American Eagle -- AA Feeder AL (SJC) |
| 131.725 | Kaiser Air Dispatch -- Oakland Air Charter Operator (OAK) |
| 131.825 | Federal Express (FedEx) SFO Ops (SFO) |
| 131.925 | Federal Express Oakland OPs (OAK) |

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This writer heard from a very reliable source that ARINC will be assigned some new HF frequencies in the North Pacific area in the near future and will also soon have a brand new HF chart available. Watch this column for more details.

We'd like to run airline frequencies for airports across the country as often as possible. However, it will take some contributions from Aircraft

| Tail Number | SELCAL Code | A/C Type |
|-------------|-------------|--------------|
| EI-CAI | JM-EK | B.747-100 |
| VH-EAA | EG-FM | B.747 (SP*) |
| EAB | EG-FL | B.747 (SP) |
| EAJ | JM-DG | B.767 (ER**) |
| EAK | CE-AF | B.767 (ER) |
| EAB | EK-AC | B.747 238 |
| EBB | EJ-HK | B.747 238 |

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And these from Eric Rensch:

| | | |
|----------------|-------|--------|
| TWA* N14814 | AE-JL | L-1011 |
| TWA N31030 | AE-KM | L-1011 |
| UAL**N4717U | AF-CM | B-747 |
| UAL N1829U | AG-DM | DC-10 |
| NWA***N8945E | AM-BH | B.757 |
| HAL****N763BE | BC-EM | L-1011 |
| JAL*****JA8155 | EG-KL | B.747 |

*Trans World Airlines
**United Airlines
***Northwest Airlines
****Hawaiian Airlines
*****Japan Airlines

our readers such as Mr. Gilliland to make this happen. I will use my own resources where I have the frequencies available, but will depend on all of you for help from your locale.

SELCAL (Selective Calling)

For those of us monitors who collect SELCAL codes, here are some from Qantas Airlines contributed by Bob Bell:

That's all for this month. Next time, we'll visit another major airline, look at some new aviation-related software, and some more area airline frequencies.

Until then, 73 and out.

int

Reception Follies

A world without TV. No matter how much you may love radio, it's a frightening thought, isn't it? Not many places are totally devoid of glowing electronic images, but there are a few in America. Port Austin, Michigan, is one of them. If you look at a map of Michigan, you might notice that if you picture the state as a hand, Port Austin is at the tip of Michigan's "thumb." When it comes to television reception, it's in its own private Idaho.

After visiting this town several times, I took on the challenge of trying to design and build an antenna farm which would pull in more than just "snow." The installation could not be visible from the outside; a large, tall attic, with several obstructions, was the only available site. No rotors could be used. Deep fringe VHF antennas did not have room to fully turn, and visiting children could use the controller as their new toy.

Sound familiar? Regardless of the desired frequency range, if you are in the boonies trying to erect a directional antenna to pull in those faint signals, you may find some help from Zuk's summer vacation in the attic.

Act One

Upon my first visit to the attic, I found a small VHF-only antenna, precariously mounted and cracked in half in the center. Old electric wiring lined the attic walls, and other debris, like old stovepipes and roofing materials, added to the hostile environment. I began a thorough clean up and removed all unnecessary metal objects and about 100 years of dirt and grime. The existing antenna was unmounted, repaired with two braces in the center, and was used as my "sniffer" antenna.

With a small color TV connected to the antenna, I became a human rotor. Each channel was searched for some resemblance of a signal, and I noted everything I saw. A recent copy of

the *Television Factbook* provided the basis for a scientific approach to the problem. It's an advertising trade guide that includes thousands of maps, one for each station, showing the areas that they cover with their signals. A quick assessment of reception possibilities told me this wasn't going to be easy.

Television stations measure their signals in two different grades: A and B. If you live close to a station, you live in a grade A signal area, and can pull in the station with rabbit ears, a coat hanger or almost anything. You need a decent antenna if you live within the grade B area, 60 miles or more from the TV transmitter site.

Port Austin has no grade A coverage at all, and only two stations barely reach grade B coverage. Two stations might be able to provide PBS viewing, but it was a long stretch.

One thing did make me smile. With only two VHF channels filled with any kind of signals, this was TV DX heaven. Tropospheric skip could be seen from cities as far west as Chicago and Milwaukee, and as far east as Toronto, regularly. Weather conditions and a variety of other factors made conditions change continually. When short-wave-like E-skip was rolling in, I couldn't keep up with it all.

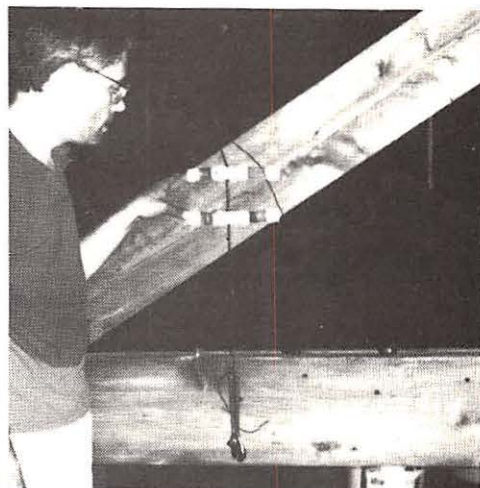
Unfortunately, these amazing reception possibilities worked against me, too. Using high-gain antennas and preamps to pull in stations 75 or more miles away, you would also pull in stations on the same channel in the same general direction from hundreds of miles away. I was at nature's mercy.

UHF was the source of more adventure. Most channels were completely empty. A PBS affiliate, about 30 miles south of Port Austin showed up every day, an encouraging sign. Two stations from Saginaw were also added to the list. Most interesting was consistent reception from Canada. At any time, at least one of three stations would be seen from Ontario.

Now to the catalogs. Most of the VHF action was happening stateside to the southwest in the Flint/Saginaw/Bay City area. I decided on the most sensitive Channel Master model for VHF: a model 3617B Super Crossfire. This behemoth, with a boom length almost 17 feet long, would be combined with a Winegard preamp left over from the original installation. A wider beam width antenna was prescribed for UHF, since signals were available from almost all directions. Channel Master's eight-bay bowtie filled the bill, along with a matching 0071C preamp. It was time for act two of Zuk's TV Reception Follies.

Act Two

The VHF monster went in first. Brackets were mounted on a large wooden support beam



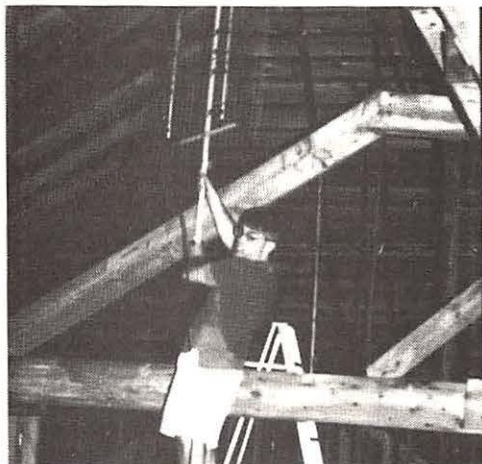
Use a plumb line to insure that your mounting pole will be vertical.

in the largest open area of the attic. Luckily, there was ample space to aim it southwest. Mounting brackets for a support pole, used indoors or outdoors, is an art in itself. Select the point you would like to mount the pole and place one bracket against the wall or other surface. Use a level and make sure the bracket remains level as you screw down. Try to get a set of brackets with hex head screws. Straight slot or Phillips head screws tend to strip out their heads under a lot of pressure.

Next, create a plumb line so that the lower bracket will align properly with the top one. Use a thin piece of cord weighted down by a heavy object (I used a crescent wrench). Align the bottom bracket so the cord rests evenly vertical in the center of the two brackets' V-shaped centers, and make sure it's level, too. Mount bracket two in this exact position, and you're all set. When you mount your pole, it will be perfectly vertical.

Avoid brackets that are made with their matching U-bolts facing in. This design makes tightening the U-brackets' nuts a real bear. If you possibly can, mount the pole first and then have a couple of friends help you mount the antenna onto the pole. Trying to mount a pole with the antenna already attached is a nightmare. You are asking for bent elements, a loss of balance, and tragedy, unless you have a legion of friends available for your antenna-raising party, or you have a bucket truck.

Don't kill your signals with poor coaxial cable or connections. Use RG-6 or RG-11 cable whenever possible, and use tight, positive fitting Gilbert F connectors crimped with a proper tool. The best equipment in the world will be useless without excellent connections. There's no room for attenuation. You're dealing with microvolts here. It's very hard to find coaxial cable mounting nails for RG-6 and RG-11, so here's another tip: use ty-raps with mounting eyes. Used delicately, these will not distort the cable and will



Look for the UHF sweetspot before mounting the antenna permanently.

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The fun began early. Mr. Super Crossfire went up smoothly, but the alignment was amusing. I aimed it roughly southwest, as my target station was ABC channel 12 from Saginaw. Wow. What a signal. But it appeared a little more westward than I predicted. It didn't take long to realize that I was watching Milwaukee, Wisconsin, via tropo skip. By the time I finished lunch, the opening was gone and Saginaw was ready for me. A pretty reasonable signal showed up on 12 and NBC Channel 5 looked pretty good too. CBS Channel 11 was directly at a right angle to the beam, and looked fair with a little color distortion.

UHF antennas are fun to set up. Because the signals at these frequencies are extremely similar to microwaves, antenna placement is very critical and can make the difference between night and day in performance. I put this small, light antenna on its mast, along with the preamp head, and walked it around the attic until I found the best spot. The eight-bay bow was pointed towards Uby, Michigan, and brought the PBS affiliate in perfectly. Flint/Saginaw/Bay City stations came in too, as well as better than ever reception of the CBC from Ontario.

Unsatisfied with CBS Channel 11 reception from the northwest in Alpena, the original small VHF was mounted and pointed in that direction, and an A/B switch was mounted at the TV set, to switch around for the best reception. Another PBS affiliate on Channel 6 came rolling in, too. Three antennas and a well-planned and executed installation now provides 11 channels and a multitude of possibilities via skip. Challenge met. Next time I'll send you a postcard. Wish you were here, and can you pass me the remote control?

Bits 'N' Pieces

It looks like WLS in Chicago is going to hold on to its talk format for a long time. For years, Musicradio 89 was a top-40 powerhouse heard all over the country. Now, their entire record library, 8,000 LPs and 3,000 singles, and two consoles have been donated to WONC-FM in Naperville, Illinois, the voice of North Central College. WLS production manager Phil Duncan formerly served as WONC's station manager, and was the main proponent behind the deal.

Mark and Brian, Rick Dees and Jay Thomas are running for cover. Outrageous talk show host Howard Stern has now added Los Angeles to the cities he entertains and terrorizes every morning. Stern broadcasts simultaneously on WXRK New York, WYSP Philadelphia, WJFK Washington D.C. and KSLX Los Angeles. Each weekday morning, Howard and his co-host Robin Quivers break all the rules with endless celebrity guest

stars, crazy news and comedy routines. A perfect complement for classic rock stations during

AM drive time, Stern has rocketed to number one in ratings in every market he's entered. Chicago's superjock Jonathon Brandmeier is likely to be his next target. Negotiations are already in gear to add The Windy City to Stern's collection of listeners.

Mailbag

- New England's first all-sports radio station will not be WEEI in Boston. Providence's 550 WICE beat them to the punch. Headquarters for New York Yankee baseball, the station has assembled an all-star team of talk hosts: Charlie Jeffers, Chuck Stevens, Mark Economou, Duffy Dwyer, Carl Grande, and Jonathan Wallach, plus an endless supply of sports comedy and music bits. Regular American Bandscan correspondent Malcolm Kaufman threw us this latest home run.

- Who is the most popular radio disk jockey on television? It could be "Chris In the Morning" Stevens on KBHR in Cicely, Alaska. You'll hear Chris play everything from Dvorak to Dylan on his show, and he loves to add poetry and literature readings for a little spice. Last year, his recitations of Walt Whitman led to a temporary suspension of his duties. The people of Cicely organized a campaign outraged at his removal and he quickly returned to the air.

Don't strain to catch Chris' act. You can hear 570 KBHR every week on CBS Television's "Northern Exposure." Several stations nationwide have responded to the success of the series and have been adding elements of Chris' style to their morning shows. Who knows? Maybe actor John Corbett, who plays Chris, will wind up on real radio in the future. Bruce Portzer of Seattle, Washington, brought our attention to the glowing tube.

New Station Grants

Several new AM stations have been allocated this month along with a host of stations a little higher in frequency. Here they are, courtesy of *The M Street Journal*: Tucson, AZ 104.1; Montezuma, GA 95.1; Idaho Falls, ID 105.5; Marlette, MI 92.5; Walker, MI 100.5; Winchester, NV 620; Jeffersonville, NY 106.1; Eugene, OR 860; Junction City, OR 650; Troutdale, OR 860; Pittsburgh, PA 93.7; Huron, SD 105.1; Woodbury, TN 104.9 and Saskatoon, SK 90.5.

For Sale

The University of Wyoming is offering their outlet in Casper this month. They are ready to

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sell all of KATI-AM, including right, title and interest immediately. Included in the package is the station's one kilowatt transmitter, studio equipment and license. Contact Larry Wilkey at 307-766-5235 for details.

A small market station, located in the sandhills area of Nebraska, is on the block for a song. This 30,000 watter grossed over \$260,000 last year with a \$40,000 cash flow. The offer includes land, studio building and all equipment necessary for on-air production. Asking price is less than a year's gross receipts, with only 30 percent down. Call 402-387-1400 and ask for Larry.

International Bandscan

- Overseas the big news can be summed up in two letters: FM. First National Radio is about to launch the first national independent commercial radio service in the United Kingdom. Their Showtime Station network will hit the air next summer featuring a mix of show music from stage, screen and concerts. FNR hopes to lure away an audience from the BBC's Radio 2 and Radio 4 services that appeal to mature adults. To operate the network FNR will pay a 2.92 million dollar annual license fee to the British government. Two other commercial AM radio networks are scheduled to be awarded licenses in the near future.

- This month Moscow is slated to receive a new commercial FM service called Radio 7, Ben Doud, president of KGWY-FM, Gillette, Wyoming, will design and operate the station.

Doud predicts Radio 7 will eventually sound just like all-American radio stations. He plans to build a similar station in Leningrad as well. Fine-tuning of Radio 7's format will depend on listener response and reaction, which is a complete unknown. "We've been told we can play anything we want," says Doud. "It's like turning a kid loose in a candy store. They are trying to see what the limits are." Hopefully, Moscovites will love the service and not see red.

Credits

A final note: please send us your comments concerning what you like or don't like about this column. Your contributions are always most welcome. Many thanks to *The M Street Journal*, *Broadcasting Magazine*, *Radio World*, and *The Boston Globe* for material used this month. Until we meet again, happy trails.



Hype and Hardware at the SBCA Convention

Twice a year, the Satellite Broadcasting and Communications Association holds national conventions to showcase the latest in consumer satellite television equipment. The association, comprised of manufacturers, dealers, and programmers in the TVRO field, holds the winter show in Las Vegas and the summer show in Nashville.

Taking over much of the Opryland Hotel for the summer version, satellite television dealers are courted by hundreds of sales reps from hardware manufacturers, programmers and the seemingly countless peripheral money seekers.

Odd Man Out

It's a little ironic to see the elaborate displays set up by the likes of General Instrument, maker of the various Cipher products, or the programmers, such as HBO, to entice the crowd they've never really paid much attention to.

To be fair, the TVRO galaxy makes up a very small portion of the cable universe and dish owners should consider themselves lucky to be noticed at all. Nonetheless, all the big boys find it in their busy schedule to show an interest in a segment of their business they've only grudgingly accepted.

The Exhibits

The convention is divided into three parts. The first and most obvious is the exhibit floor. It's here that hundreds of industry titans and would-be titans exhibit their wares. GI, as mentioned, shows off its new security device they call the CipherCard. Of course, it's not in production but they have a lot to say about it.

Zenith puts in an appearance with a fairly priced "home theater" display: about \$3,500 with Bose speakers and Dolby ProLogic Surround Sound and a 52 inch rear projected screen. Oddly, they don't have one Zenith TV set equipped to receive the Electra Teletext service. One sales rep told me it is because they don't have any Digital System 3 sets with cabinets to match their display.

The omnipresent Bob Heil unveils his latest idea: a super home theater for the super rich. His demonstration — a full mock-up of the home theater he hopes to franchise — features a special LucasFilms promo tape on LaserDisc complete with eye-boggling video and brain-numbing, chest thumping audio. It is clearly the highlight of the show with a nearly one-hour wait to get standing room only for the demonstration.

TVRO Viewers can catch "Dealer Net" 1st and 3rd Saturdays at 10:00am ET where you may find some of these personalities. Left to right: Ron Bruce, Spectrum Consulting; Jeanie Mooneyham, Shop at Home Production; Bill Beason, Shop at Home/Dealernet.



These theaters start at about \$30,000 and, by the way, you can get a voice activated option for the system for an extra four grand.

TVN, the struggling C-band pay-per-view DBS service has a large booth and is doing a land-office business signing up eager dealers. The pipe-chomping entrepreneur, Jim Roberts of Gourmet Entertaining, tirelessly hawks his excellent installation and alignment products to appreciative crowds. The Shop At Home boys, Bill Beason and Joe Overholt, are videotaping much of the goings-on for future "Dealer Net" shows.

The Playboy Channel provides thrills for many satellite TV dealers who endured long lines for a chance to sit in a chair next to Miss April — or was it March? — and have their picture taken. Not to be outdone, Spice, the other adult movie service, has a number of similar-looking young ladies decorating their booth.

Nearly 20 satellite receiver manufacturers, an equal number of dish makers, a dozen feed horn/LNB companies, and a half dozen actuator makers were represented at the summer show. In addition, there were dozens of programs and equipment distributors and many more accessory and peripheral companies eager to find new dealers.

The Antenna Farm

The second component of the convention is the extensive dish farm, located in a parking lot outside the hotel. Here conventioners are safely out of earshot of the drivel dished out by salesmen. Weathering the 96 degree 95 percent humidity of the dish farm are the technicians who know what they are talking about. While many of the 30-something dishes are actually functioning, a lot of them are for display only.

The dish that most caught my interest was

from Antenna Engineering, Inc. While the company is a new one on the scene, its president, David P. Johnson, is not. Johnson was one of the founders of Paracclipse Antennas, now off to seek his own fortune. While waiting for legal arrangements to elapse, he has taken the opportunity to put his considerable dish design expertise to work engineering a top-grade satellite reflector.

At present he is making only one dish, a 13.5 foot aluminum dish, with horizon to horizon mount. He has improved the manufacturing process to make the parabolic curve very stable with much less metal, and the best part is that he has passed the savings on to the consumer. The product is extremely affordable for such a big dish.

The Meetings

The third component of the convention is the series of seminars and meetings having to do with current topics of interest in the industry. These feature Home Theater dealer courses, Fine Tuning Your Installation Skills, and others. Hot political topics addressed in the meetings include: Telcos In TV — Fair or Foul?, Piracy-VideoCipher II Data Stream Turnoff-Legal Upgrade programs, and the Future of Sports On Satellite Television. The purpose of these meetings was both to familiarize the dealer with the various topics and to promote the various businesses involved.

Missing and Accounted For

Notable in their absence from the show were the various "flat plate" antenna makers: the much ballyhooed DBS (Direct Broadcast Satellite) services, SkyPix in particular, and anything resembling real HDTV (High Density Television).

Faces in the crowd included: Shaun Kenny, Taylor Howard, Harry Thibedeau, and numerous others including, oddly enough, Babar the elephant.

Impressions

According to reports in the industry journals, the convention was a big success. An article in *The Transponder* quotes the SBCA as seeing a 10 percent increase in attendance over its winter show in Las Vegas this year with some 1,753 dealers represented. All told, better than 3,000 attended the convention.

It was an extraordinary opportunity to talk with those whose business is linked to satellite television. I found it hard to get coherent answers from the sales reps, but the technicians, designers, and dealers were quite candid.

Clear differences were seen between regions of the country experiencing completely different economic conditions. One dealer from Minnesota told me his business was definitely picking up as fears of a recession faded for his customers. He was very interested in the Home Theater displays and thought he could sell several of the high end theaters.

Another dealer, this one from Texas, said his customer base was still in an economic depression dating back to the collapse of the Texas oil and S&L industries there. He would be very hard pressed to sell even the low end Home Theaters, he said, although there was no lack of banks willing to finance satellite systems. There were just fewer qualified buyers.

This dealer rode out the hard financial times by taking other jobs and doing whatever he could to attract customers. His business still intact, he hopes to join the optimistic surge other geographic areas anticipate.

For More Information

If you are interested in seeing next year's SBCA conventions for yourself, they will be held at Bally's Hotel, Reno, Nevada, February 12-14 and at the Baltimore Convention Center August 6-8. Write SBCA, 225 Reinekers Lane Ste 600, Alexandria, VA 22314, or call 703-549-6990.

For more information on Antenna Engineering, Inc., write David Johnson, 2220 Taylor Rd., Searcy, AR 72143 or call 800-844-3850 or 501-168-5619.

Mailbag

• Paul Martin, KC6TMW, of Modesto, California, wants to know more about X*Press X*Change, the digital data service available to dish owners and cable viewers alike.

Paul, to receive X*Press X*Change you'll need to have a VC II stand-alone or IRD and the GI InfoCipher 1500R data receiver. With these in place, simply set your dish to Galaxy 1 channel 7 or 18 and turn on your computer. The InfoCipher is an interface which connects your receiver to your computer. With the software in place, your equipment does the rest.

From there you start collecting and storing news, sports, weather, financial and many more stories as they are fed 24 hours a day. The buffer will hold some 200 to 300 separate stories (hours of reading) before filling up. To add more text just dump stories as you read them. You could be there all night.

It's an extraordinary electronic newspaper delivered to your home all day every day. Cost of the data receiver and software is \$189.95. A monthly subscription fee of \$10 per month is charged for the basic service. The X*Press Executive is \$26 per month (X*Press X*Change, Regency Plaza 1, 4643 S. Ulster St., Suite 340, Denver, CO 80237). In the future the services may be available through NetLink Programming Services at a reduced rate.

• Rod Locke of Providence, Rhode Island, has an interest in financial news programs, particularly CNBC/FNN (F1R channel 6) and would like to know what the least expensive installation would be to be able to receive such programming.

That's a great question, Rod. First, regardless of anything else, you'll need a satellite dish, C-band feed horn, LNB and the necessary cables to get to the house. Figure about \$600. Optionally, you'll need an actuator to move the dish. Add about \$150. Now add a low-end satellite receiver with built-in descrambler, about \$600, and you'll be watching CNBC/FNN which, as of this writing, is unscrambled. Basically, you could get a new system via mail order for about \$1500.

It's possible to halve that cost by looking for special deals or by buying used equipment and doing your own installation. Readers who might be interested in more information on these and other aspects of getting started in satellite television may find my *Satellite Television Sourcebook* helpful. It is available from Xenolith Press, Route 5, Box 156A, Louisa, Virginia 23093.

• My thanks to MT reader Rob Cave of Princeton, Texas, for a package of information from manufacturers which he has been collecting. I have been passing those items on to interested parties, Rob, and appreciate your sending them in. If other readers have items of interest regarding satellite TV which you'd like to share with our readers, send them to the MT editorial address in care of my attention.

If you have questions regarding TVRO, feel free to write. If you would like a personal reply please send an SASE.



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Shooting for the Stars

I recently read a packet message from G3ZCZ entitled "Radio Amateurs Aim at Mars." The idea comes from Dr. Karl Meinzer DJ4ZC. Dr. Meinzer has been active building OSCARs (Orbiting Satellites Carrying Amateur Radio) for twenty years and consequently has a firm grasp of the possibilities.

He states that amateurs have demonstrated the ability to control spacecraft motors to move their spacecraft from launch insertion orbit to an operational orbit. This capability would conceivably allow amateurs to launch an upcoming mission to Mars! It would prove a unique educational experience to say the least. I hope AMSAT will begin working on what sounds like a great idea.

Why Stop at Mars?

Even more educational and worthwhile might be for amateurs to launch their own astronomical eye in the sky: A telescope that could be controlled from earth and aimed at any part of the universe we desire.

A simple four-to-six inch telescope above the earth's atmosphere would allow interested amateurs to do some worthwhile astronomical research. Such a project could be available to any citizen with the price of a receiver, computer and easily available hardware, i.e., an SWL OSCAR.

To be sure, the non-ham participant would not be able to exercise control over the spacecraft, but then again, only a limited number of amateurs would have the ability to control the "eye in the sky." The interest a project of this nature would inspire in the general public could well be the spark needed to bring technical-minded individuals into our hobby! It would create the SWL of the 21st century.

Let's carry the concept further, since we've come this far. AMSAT could develop the eye, and a committee could formulate its missions. Anyone with an interest and ability to use the eye would have the responsibility of choosing projects and priorities. In this manner, a large number of amateur astronomers would have an opportunity to do some unique studies; and potentially add to the bank of knowledge about our universe and world.

A program of this nature would in turn spawn several eye in the sky nets and promote general interest in ham radio. It sure would be more fun than listening to hams exchanging signal reports through OSCAR or RS birds!

Problems

The technology to complete such a project is here now. In fact the first OSCAR undoubtedly

had more difficult hurdles than an "eye" would present. It might pose problems of a legal nature; however, it seems to me most governments of the world would welcome a project like this. Here is an opportunity to do more than talk or download telemetry data from a spacecraft. What do you think? — ideas, comments?

Good Books

It is difficult not to notice the number of answer books being published for the new amateur licenses. Most of these new books give only answers for the exams and not nearly enough information of more general help. I have felt for a long time that a book along the lines of the old ARRL License Manual was needed.

While many of you may not have liked the old manual, it must be remembered that the idea was for the student to use the *Handbook* in conjunction with the license manual.

Now You're Talking fills the bill exactly. This ARRL publication provides the student with all the technical information required to pass the FCC exam for the Novice and Technician license.

More than just an answer book, *Now You're Talking* condenses the concepts of communications/electronics into an understandable text. The student using this manual will readily understand how radio works. Much of the information is excerpted from the ARRL *Handbook* and provides models for the newcomer to work from. For example, pages 7-17 illustrate a simple vertical antenna the novice can actually use. Another section shows you how to build a code practice oscillator that will allow you to practice code by yourself or with a friend.

Sections on operating a station pave the way for that first QSO (contact) be it on phone or CW

(code). Discussions of the various bands and propagation help you understand what to expect from a band at any given time.

Now You're Talking is extremely easy to read with many excellent illustrations for each topic. Complex subjects are condensed and explained in such a way that the average person can comprehend and remember the material. This book is a great first radio manual, one that will allow the student to build a sure foundation of knowledge that can be added to later. At a price of \$19.00, it should be in everyone's library.

Now You're Talking is available from the ARRL at 225 Main St., Newington, CT, 06111 or your local Radio Shack.

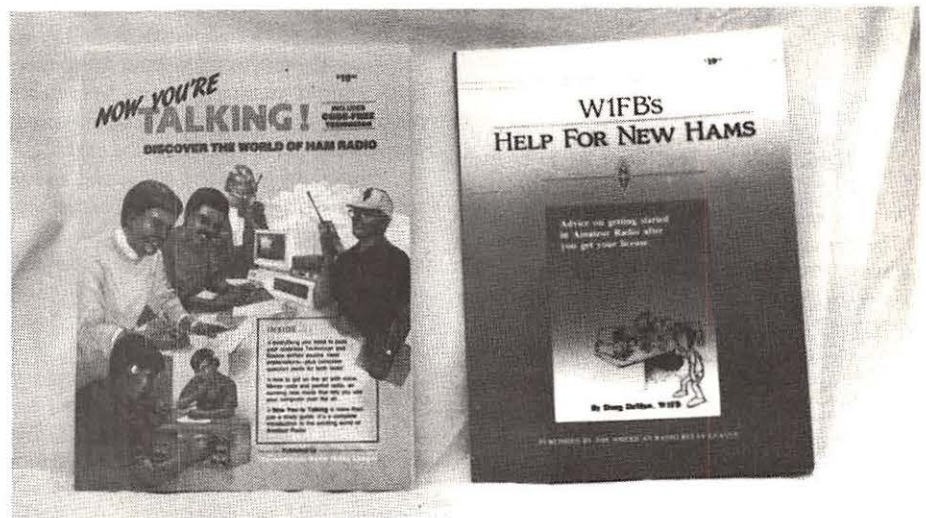
Now What?

OK, you studied *Now You're Talking*, took the test, and have just received that piece of paper that says you are an amateur radio operator. What do you do next?

Another ARRL book by MT's own Doug DeMaw, W1FB, has that answer. *W1FB's Help for New Hams* guides the newly licensed amateur through the morass of questions that crops up after the ticket arrives.

Eleven chapters show the beginner what type of gear is available and how to use it, how to choose and erect an antenna, laying out a station, and how to overcome first contact (QSO) jitters. Other sections describe accessories for your station and how to cure TVI (television interference) and RFI (radio frequency interference).

"On the Air Conduct and Procedures" is my favorite chapter. This section generally outlines the correct way of carrying on a contact via amateur radio and gives the new ham ideas of what a good QSO should be like. Especially



Rob Leonard's

Ham DX Tips

This is one of the BIGGEST months for ham DX. Not only are conditions excellent, but many DX-peditions are scheduled to take place to coincide with the annual *CQ Magazine's* "DX World Wide SSB Contest," which takes place this year on October 26th-27th. If you have an opportunity, listen to any of the voice segments of 10, 15, 20, 40, 80, even 160 meters during that weekend. There will be plenty of DX for you to hear! Until that time, try your luck with these DX targets:

AZORES CU8AH can be found on SSB around 14-95 kHz most days starting at 2130 UTC. QSL requests go to: Jose F. Fernandes, R.S. Catarina 2, P-9970 Santa Cruz das Flores, Azores Islands, Via Portugal.

BOTSWANA Daily A22AA appears on 21230 kHz SSB at 1630 UTC. Reports go to: Charles Lewis, Private Bag 38, Selehi-Phikwe, Botswana.

ENGLAND The various DXCC countries that make up Great Britain have new "novice" class licenses with new prefixes. The prefix for England is 2E. Each prefix is followed by either the number 0, 2, 3, or 4, and three letters. These new hams can be found using low power on the following frequencies: 1950 to 2000 kHz CW and SSB, 3565-3585 kHz CW, 10130 to 10140 kHz CW, 21100 to 21149 kHz CW, 28100-28190 kHz CW, 28225-28300 kHz CW, 28300 to 28500 kHz SSB and CW. For you 6 meter fans 50620-50760 kHz RTTY and other data modes, 51250-51750 kHz CW and SSB.

FEDERATED STATES OF MICRONESIA Daily V63CJ and V63DJ can be found on 14190 to 14220 kHz from 0600 to 1100 UTC. If you log either or both send QSL requests to: KA3DEN, John L. Rouse, 2703 Barlett Ln., Bowie, MD 20715.

FIJI 3D2PO (Ian C. Doncaster, Box 184, Suva, Fiji Islands) can be located on 14185 kHz daily starting at 1000 UTC.

GUERNSEY The new UK "novice class" license (see England for operating frequencies and modes) prefix for here is 2U.

ISLE OF MAN The new UK "novice class" prefix for this country is 2D.

JERSEY The new UK "novice class" prefix for this country is 2J.

MOROCCO CN8CS (P.O. Box 6577, Rabat, Morocco) has been on 14093 kHz RTTY most days at 0030 UTC.

NORTHERN IRELAND The new "novice class" prefix is 2I.

PANAMA HP1XBH is on 0030 UTC around 14090 kHz operating RTTY most days. Reports go to his QSL manager W4YC Edward A. Engebrelson, 1308 Hunting Ridge Rd., Raleigh, NC 27609.

RUSSIAN REPUBLIC Special Events station EO50PQ will be active 'til 15 October to honor WWII Allied convoys to the USSR. CW fans have the better shot at this one which has been operating 14005 to 14025 kHz between 0230 to 0400 UTC daily. QSL route is announced by the station.

SCOTLAND The new "novice class" prefix is 2W.

THAILAND HS5SEA will be active from the Southeast Asian net (SEANET) amateur convention November 8 to 10 from the Empress Hotel in Chiang Mai in Northern Thailand. The station will operate, among other times and places, on the SEANET frequency of 14320 kHz daily at 1200 UTC.

Gud DX and 73 de Rob

useful to the new novice or tech is the portion about repeater operating. This chapter should be required reading for every ham!

After passing the exam I hope you will run out and purchase your own copy of *W1FB's Help for New Hams* from the ARRL or any ham dealer. At ten bucks it is a bargain. When purchasing books direct from ARRL there is a shipping handling fee. Inquire at time of purchase what the cost will be.

Looking for Lakeview?

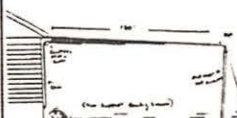
If you were unable to contact the Lakeview Co. regarding the HF antennas reviewed last month, the correct phone number and address are 1-803-226-6690; 3620-9A Whitehall Rd., Anderson, SC 29624. Our apologies for providing the wrong area code.

That's all for October, gang. Have a good Halloween.

73 Ike, N3IK

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WORLD COM TECHNOLOGY
P.O. Box 3364
Ft. Pierce, FL 34948 (407) 466-4640.

The Mailman Groans: Old box 1116 has been filled to overflowing as of late. So, let's get right down to business and see what "Outer Limits" readers have been hearing.

Regular contributor Bob Thomas of Connecticut continues to hear the anti-Iraqi and CIA-sponsored clandestine **Voice of the Iraqi Opposition** on both 15600 and 17960 kHz after 2200. This station previously was known as The Voice of Free Iraq. If you have never heard a clandestine, this one should not prove too difficult. Most programs are in Arabic and probably originate from both Egypt and Saudi Arabia.

Out in California, Paul Schmitt, the "Short-wave Ape," came across **KPN-36** on 7400 kHz at 0330. The station calls itself the **Voice of the Pacific Basin**, and, among other things, plays Hawaiian and classical Chinese music. In addition, Paul had **Radio Free America** on 7415 USB at 0404.

Another Californian, Skip Harwood, also monitored **KPN-36**. However, he found a station which might give it a little competition in the Hawaiian music category. This was **KLOG** on 7406 at 0366. **Radio Free America** checked in on 7415 in USB at 0340.

By the way, Radio Free America, I would still be happy to reply to your question if you will send me an address where you can be reached.

In Missouri John Taylor bagged **WHO** on 7415 at 0116. This station was inspired by the BBC's science fiction series, "Dr. Who." We have had several requests for this station's address. The doctor can be reached via Box 452, Wellsville, N.Y. 14895.

Need we say more? In Virginia Pat Murphy continues to have smashing success. Among his recent catches are **WKND** on 7415 at 0321, **KXKBI** Interplanetary Radio on 7415 at 0200, **He Man Radio** on 7412 USB at 0135, and **Mega Radio** with metal rock on 7415 at 0125. Pat notes a lot of people keying up their transmitters to cover pirate broadcasts. These, of course, could be both annoyed hams and other pirates.

Also landing **KXKBI**, at 0400, was Larry Gotts in Pennsylvania. Larry says programming included many sound effects.

In Illinois Frederick Porzelt not only logged several pirates but also managed to QSL them. He found **Voice of Bono** on 15050 at 0120, **Hope Radio** on the same frequency at 1505, and **Radio USA** on 7415 at 0231.

Glenn Waber in Wisconsin came across an unusual one in the Chicago Tunnel Company, which claims to broadcast from deep beneath the city of Chicago. The Tunnel Company was using a variable frequency of 7413 to 7416 at 0145 UTC. Also making it to Wisconsin was the **Voice of Anarchy** on 7414-7415 at 0225.

Meanwhile in Michigan George Stoner wasn't doing too badly either. He found A.J.

Paul Schmitt of California has gone positively "ape" over shortwave.



Michaels and **Action Radio** on 7415 at 0208 claiming to broadcast "off the western coast of Nebraska." Hey, George, maybe they were. Nebraska has a navy. A friend of mine was an admiral in it. George also heard **WKND** on 7415 at 0250.

Down Florida way Mark Seiden got the **Europirate Radio Fax** on 12255 LSB with Elvis tunes at 0125. This one transmits from Ireland. If you have never bagged a **Europirate**, a little patience should get you this one. At times it has maintained a 24-hour schedule.

Mark logged **WORK** on 7412.5 at 0305, appropriately enough with rock work songs. **WTKR** came in on 7415 at 0155 with a strong signal and a claim of 1000 watts.

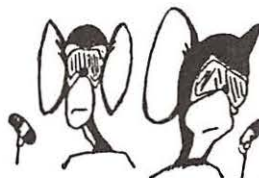
Matt Siegel of Illinois says a follow-up reception report to **Midnight Radio** yielded not only the QSL, but a letter saying they had lost some reports. So if your mailbox has been empty,

it might be a good idea to send another letter to Box 109, Blue Ridge Summit, Pa. 17214. **Midnight Radio** also declares that reports of their being closed are not true.

William Schmitz checks in once again from the nation's capital. He continues to have great success. His catches include the **Dutch Radio Tower** on 15050 USB at 0003. I understand this one has had some transmitter difficulties lately. When he is at full strength, he is another **Europirate** that should make it well into North America. And, yes, occasionally **Europirates** make it all the way to the west coast.

William reports that several stations were relayed by **Radio USA** on 7417. At 0030 **Omega Radio** had a program which included a discussion on social problems in Europe and a talk on biblical prophecy. **Defiance '90!** lived up to its name at 0010 with an invitation to engage in flag burning. On a happier note, **Radio Comedy**

YOU HEARD US!



MIDNITE RADIO

NAME Matt Siegel

FREQ. 7415 kc POWER 15 watts

DATE 5/5/90 TIME 0545 UTC

TECHNICAL Yeasu transmitter

the
MIDNITE RADIO

Box 109

Blue Ridge Summit,

PA 17214

(214) 888-1551 24 hrs!

modulation was half AM 15 watts

and half LSB 100 watts

QSL#26

SIGNED Maxwell Silver PD.

Matt Siegel has added a Midnight Radio QSL to his collection.

Club had recordings of Bill Cosby, Elmer Fudd and "Leave It To Beaver" at 2336.

Finally, up in New Hampshire, Guy Chouniard is now the proud owner of his first pirate QSL. It arrived from Action Radio. Guy also came across WHO on 7415 at 0145.

Here and There: A most unusual letter was forwarded to us from Brasstown headquarters. The writer says some years ago he was able "to make regular nationwide radio broadcasts from jail." He says he actually had committed no crime to land there in the first place. How the broadcasts were made he does not say, but this is another one of those cases where ye editor thinks it best to omit the name and eat the evidence.

If you haven't caught it already, then look for that promised Radio Caroline relay on WWCR 7520 kHz. The folks at Radio New York International will be bringing it to you on the first UTC Monday of the month, probably around 0400. RNI hopes to eventually broadcast two Caroline shows a month.

Meanwhile we have heard from Martin Lester in England. He says Caroline still declares it will once again broadcast from the ship Ross Revenge. However, he notes that the European broadcasting situation is rapidly changing and Caroline, in the future, will face stiff competition from satellite services and the Irish longwave station Atlantic 252. John Catlett is the man in charge at Atlantic 252. He headed Laser 558 which also transmitted from a ship.

On Long Island, New York, WBAB-FM in Babylon had its simulcast music transmission interrupted during a fireworks display. The pirate broadcast for almost an hour and a half. Some 125,000 to 200,000 people attending the Uniondale fireworks and living in the area heard the pirate. Our thanks to Arnold Weiner and Herb Gesell for sending us the *Newsday* report on this.

Clandestine Stuff: From the BBC Monitoring Service comes a variety of recent clandestine information. Clandestine Voice of the Iraqi Opposition reports that Saddam Hussein's government is so worried about anti-Iraqi government clandestine broadcasts that it has invested heavily in jamming equipment. Voice of Iraqi Kurdistan meanwhile can be heard on 5931 from 0400 to 0500. The Voice of Iraqi Kurdistan broadcasts on 6151 from 0400 to 0500.

As predicted here, the Ethiopian clandestines are starting to disappear. One that may still be on is Voice of the Tigray Revolution from Mekele from 0400 to 0500 on 6940 and 7820.

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PS Form 3526, Dec. 1987

(See instructions on reverse)

The Rwandese Patriotic Front claims to be operating Radio Muhabara from 0400 to 0600 in the 49-meter band. Muhabara means "leading the way" and is also the name of a mountain in northern Rwanda.

In the Philippines, communist guerillas have set up a portable FM clandestine on 106.7. It is known as Radio Southern Tagalog.

Far Eastern Economic Review reports dissident politicians opposing the Burmese government want to establish a radio transmitter, but the Karen tribe, which has long been in combat with the government does not want it in its territory. The dissidents have formed the National Coalition Government of the Union of Burma and have a camp in Karen territory.

According to the CIA's Foreign Broadcasts Information Service, a large grenade hurled at the main office of radio station KW Continente in Panama City did considerable damage. KW Continente was a major opponent of the Noriega regime. Our thanks to Frank McGuire for the FBIS information.

Is there an independent radio voice in the USSR? David Eason sent along an article on Moscow Echo, which is just that. It had the courage to report the Soviet government's crack-down in Lithuania when state radio and TV did not.

That's it for another month. Thanks for your continued outstanding support and kind comments.



Gearing Up

While others lament the passing of summer, long wave fans are quietly celebrating the better signals and lower static levels that come along with autumn. With even better conditions on the way, now is the time to gear up for a new season of DXing.

Besides the usual pre-winter antenna checks, why not take a minute or two to make sure your listening records are in order? It can be tough to keep up with changes that occur in the band from year to year. New stations are added, some old ones are deleted, frequency/format changes are made and beacon power levels are frequently adjusted. Good records can really boost your enjoyment of this very changeable band.

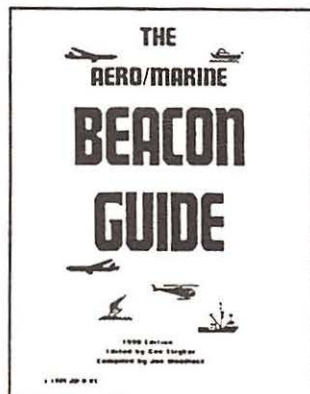
One of the best ways to cope with the changes is to dust off last year's logbook. Keep it handy when you explore the band this winter so you can readily see what changes have occurred and make the needed revisions. You might be surprised just how different the band looks from last year.

If you're just starting out, give some thought to the kind of log you want to keep. Just as with SW logs, it's important to show the date, time, frequency, callsign and location, if known, of the station heard. For beacons, you might also want to indicate identifier pitch, the presence of any voice WX weather broadcast and whether or not it is operating in conjunction with other beacons (sequenced).

Many LWLs prefer to log sequentially by callsign and/or frequency. This method is particularly well suited to logging by computer as it allows you to easily make changes at any time. Whether you use a computer or an ordinary paper log, you could classify your listings with a code to indicate the types of signals you hear. For example, "LFR" could denote Lowfer stations, "BC" could be used for broadcasters, "NDB" for nondirectional beacons and "UNID" for unidentified stations and so on.

It's frustrating to hear a new signal and not know its origin or purpose. Wouldn't it be nice to have a handy reference where you could find this information? One listener I know uses aviation sectional maps available from many airport Flight Service Stations to find beacons in his region. In some cases these maps also show the locations of marine beacons as well. The maps are extremely accurate and are not all that expensive.

One of my favorite references is *The Aero/*



The Aero/Marine Beacon Guide is one way to identify mystery beacons.

becomes much more rewarding. At \$15, the book is probably one of the best values in my shack. You can get more information on it by writing to: 2856-G West Touhy Ave., Chicago, Illinois 60645.

In the never-ending cycle of change, word has come of a shakeup of marine beacons on the west coast. Periodically the Coast Guard evaluates its network of navigation aids to determine whether or not they are adequately providing the service for which they were originally intended. Often, power levels or frequencies are changed or beacons are physically moved to new sites. Sometimes a specific beacon is decommissioned entirely. Below are some proposed changes announced by the Eleventh Coast Guard District of Long Beach, California. As you read this, it is likely several of these changes have already been implemented.

Scheduled to change:

- Pt. Pinos will change from 290 kHz to 321 kHz
- Pt. Sur will change from 322 kHz to 303 kHz
- Los Angeles will change from 325 kHz to 311 kHz
- Long Beach will change from 296 kHz to 298 kHz

Scheduled to be discontinued:

- Pt. Arena, Pt. Reyes, Farallon Islands, Pigeon Pt., Pt. Arguello, Anacapa Island, Pt. Vicenete and Piedras Blancas

Service range adjustments:

- Range increased from 10 miles to 30 miles: Pt. Bonita, Santa Barbara, Channel Islands, Los Angeles and Oceanside
- Range increased from 50 miles to 125 miles: Humboldt Bay and Pt. Sur

Marine Beacon Guide put out by Ken Stryker. It's become my prime source for identifying elusive beacons as evidenced by its dog-eared pages. The guide lists over 7,000 domestic and foreign beacons both by frequency and callsign and includes other useful tips such as QSLing, propagation information and details on the Groundwave Emergency Network (GWEN). There's also a complete list of all known Lowfer stations.

An update is available each fall for the guide that keeps your copy current. Armed with the latest data, your search for new signals

- The Long Beach beacon range will be increased from 10 miles to 125 miles
- The Pt. Loma beacon is scheduled to be unsequenced and its range reduced from 150 miles to 50 miles with no change in frequency or identifier.

Tuning Tricks

Did you ever see those impressive loggings from the pros and wonder just how they do it? Well, besides a good measure of patience, tuning technique can play a big part. Perry Crabill, W3HQX (VA) passed along a tip he uses to get the most out of his Kenwood R-5000 receiver. This method should also work well with similar receivers having an IF shift control.

The trick is to use the USB mode with the narrow CW filter enabled. By proper adjustment of the IF shift control, it is possible to tune for the upper sideband of a keyed beacon signal, typically 400 Hz for Canadian beacons, 1020 Hz for U.S. This reception method is much more sensitive than straight AM reception. It also makes it possible to separate a Canadian station using the same carrier frequency as a U.S. station by carefully tuning the IF shift control for the desired sideband. The net result could be two loggings on one dial setting.

To show just how well this works, Perry included this fine list of DX intercepts:

| FREQ | CALL | LOCATION |
|------|------|-----------------------------|
| 296 | UBO | Batabano, Cuba |
| 305 | YQ | Churchill, Manitoba, Canada |
| 305 | OI | S. Sioux City, NE |
| 311 | TBG | Panama City, Panama |
| 323 | BSD | St. David's Head, Bermuda |
| 343 | PJG | Williamstad, Curacao |
| 407 | SWA | Swan Island, Honduras |
| 413 | TAM | Tampico, Mexico |
| 526* | ZLS | Stella Maris, Bahamas |

*Formerly at 320 kHz

Trivia Time

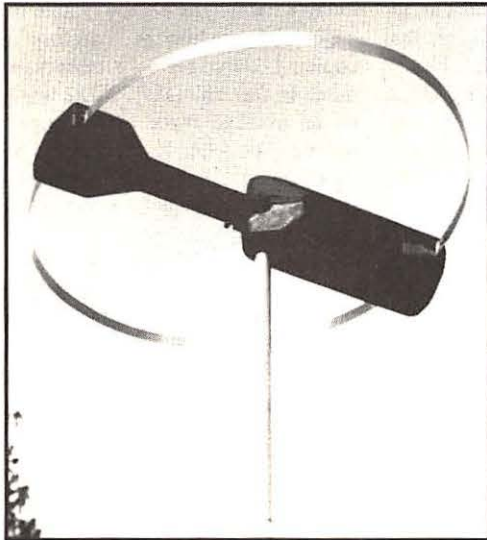
A few years back, there used to be a high-power station below 180 kHz that would show up from time to time with AM voice tests. Can you tell me its callsign, location and the U.S. agency that operated it? I'll have the answers in a future column along with an update on this long-dormant station.

It's been great hearing from so many of you. Keep those loggings and letters coming in. I'll see you here next month.



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AEA-FAX is simply the best way to demodulate multi-level grey scale fax images received by your general coverage receiver. All necessary hardware and software is included in the package which also features: On-screen tuning "scope"; Autolist feature for unattended image capture and save-to-disk; "Daisy-chain" external RS-232 input allows AEA-FAX to share a COM port with a PK-232MBX or other Hayes-compatible device; up to 16 grey levels (VGA); also supports EGA, CGA and Hercules formats; prints to HP LaserJet or Epson compatible printers.

Copying ARQ

RTTY modems like the Universal M7000, the Wavecom W4010 and others have the capability of receiving ARQ modes. ARQ stands for Automatic ReQuest which is a teletype system that checks for data errors. Standard baudot RTTY sends data "brute force," i.e. what you see is what you get. It doesn't have an error checking or correcting scheme. So when you are copying baudot on a noisy channel, there is a good probability that you will receive noise.

With ARQ there are usually two frequencies involved. One frequency or path sends data to the far end. The far end receives the data and if there are errors it sends a request character to the near end using the other path. The near end responds by repeating the character that was last sent. The whole setup sounds bizarre but it does make an interesting hobby.

The pros love it because it gives them the challenge to search out both paths. The task isn't easy because not only does it require a duplication of equipment, it also involves the skill of recognizing the mode by listening to the FSK or "diddle" sound.

Try to copy, for example, a station sending the QBF "Quick Brown Fox" message. If you have a receiver with two VFOs, hold the first QBF station in VFO "A." Then try to hunt for a second QBF using VFO "B." If you occasionally flip to VFO "A" you can refresh your memory by hearing the distinctive diddle sound.

Just about any pro can tune in an RTTY station and tell you the mode, baud rate and shift just by the sound. I can't explain in words what an RTTY station sounds like. But ARQ, for the most part, is quite easy to detect by ear because the data is repetitious. That is, if you listen carefully, you can hear the diddling. It repeats a certain rhythmic pattern.

It may take years of practice, but you can get the hang of it. Figure 1 is an abridged frequency list for getting started.

Knowing Right from Left:

In last month's column on computer control of the M7000, I stated that following the outlined procedure would change the right bracket "[" key to turn the unit on and the left bracket "]" to turn it off. The brackets were correct; their names (right and left) were obviously reversed. Additionally, the first line of the Basic OPEN statement should read: 10 OPEN "COM1:4800, etc."

DSP Update

Last March I announced that I am working with an engineer to develop a Digital Signal Processor (DSP). The progress report is very exciting. We have several modems now and I have been running tests on them. The modems

I'm referring to are computer programs or instructions that the DSP uses to perform its magic. The DSP actually solves mathematical problems that synthesize or simulate the filters in an RTTY TU or packet TNC. The computer program in a sense replaces the capacitors, inductors and resistors that are normally used in a filter circuit.

I have just finished a one-on-one test that compares an AEA PK232 with an AEA PK232 that has a DSP. connected to it. The PK232 has a connector on its rear apron that allows the user to connect an external modem. The modem in this case is the filter circuit that converts the mark/space tones to a digital signal. The digital signal is then sent to the microprocessor inside the PK 232 for further decoding and conversion to the ASCII character that is eventually displayed on the computer's monitor. The external modem I used was, of course, the DSP.

I conducted the test by connecting the PK232/DSP to an ICOM R71 audio output jack. The PK232s were connected to individual computers. The receiver was tuned to 14.113 LSB and both PK232s were set up to monitor the packet

channel. I was hoping if the DSP had a well-designed filter program, the DSP-equipped PK232 would receive more packets than the stand-alone PK232.

Copying packets or even establishing a connection on the HF bands is a big problem for today's hams. The DSP was able to copy 5-1/2 pages of text while the "barefoot" PK232 only copied 1-1/4 pages — a remarkable improvement. In fact, the DSP/PK232 was able to copy on an average twice as many packets on 20 meters even when the conditions were poor. It even copied retries of other packet stations while the PK232 with no DSP sat idle and printed nothing on the computer screen.

Using a simulator software package that makes an IBM PC act like a DSP, the software modem was tested over and over until it performed to exacting standards. The new DSP can replace the filters in just about any RTTY, packet or FAX modem on the market.

Other modems for RTTY, AMTOR, FDM, and even piccolo will be developed in the same way.

NNN

| FREQ | CALL | LOCATION | BAUD/SHIFT | COMMENTS |
|---------|-------|-------------------|------------|----------|
| 4056 | TJK | DOUALA, CAMEROON | 48/850 | ARQ-E3 |
| 5357 | RFFF | LYON, FRANCE | 96/380 | ARQ-E |
| 5823 | CBFDM | CHILI | 96/170 | ARQ-M2 |
| 6770 | RFLI | FDF | 96/850 | ARQ-M2 |
| 6935 | RFLI | FDF | 96/850 | ARQ-M2 |
| 7704 | RFTJ | FDF | 96/850 | ARQ-M2 |
| 8000 | RFHJ | PAPEETE | 96/850 | ARQ-M2 |
| 8244 | CBFFA | CHILI | 96/170 | ARQ-M2 |
| 9375 | RFHJ | TAHITI | 96/850 | ARQ-M2 |
| 10120 | RFFX | VERSAILLES | 72/380 | ARQ-E |
| 10169 | RFTJD | LIBREVILLE, GABON | 72/850 | ARQ-E |
| 10283 | RFLI | FDF | 48/425 | ARQ-E3 |
| 12063 | RFLIG | CAYENNA, GUIANA | 72/850 | ARQ-E |
| 13310 | RFFXC | VERSAILLES | 72/450 | ARQ-E |
| 13473 | RFHF | FRANCE | 96/850 | ARQ-M2 |
| 13542 | RFTJD | LIBREVILLE, GABON | 48/850 | ARQ-E3 |
| 13572 | RFFX | VERSAILLES | 72/425 | ARQ-E |
| 13732 | RFLIC | FDF | 72/850 | ARQ-E |
| 13635 | RFHJ | FDF | 96/850 | ARQ-M2 |
| 13980 | RFFXL | BEIRUT | 72/425 | ARQ-E |
| 14485 | RFVIT | FRANCE | 96/425 | ARQ-E |
| 14663 | DMK | BONN | 48/170 | ARQ-E |
| 14925 | RFTJ | DAKAR | 96/850 | ARQ-M2 |
| 15815 | MKK | LONDON | 96/350 | ARQ-M2 |
| 15860 | TLO | BANGUI, AFRICA | 72/425 | ARQ-E |
| 16260 | RFTJD | LIBREVILLE, GABON | 48/850 | ARQ-E3 |
| 17379 | RFTJ | DAKAR | 96/425 | ARQ-E3 |
| 18289 | DMK | BONN | 96/170 | ARQ-E |
| 18965 | RFHJ | PAPEETE | 96/850 | ARQ-M2 |
| 19048 | RFFA | PARIS | 96/425 | ARQ-E3 |
| 19215 | RFLI | FDF | 96/850 | ARQ-M2 |
| 20146.3 | ? | GERMANY | 96/170 | ARQ-E3 |
| 20268 | TLO | BANGUI, AFRICA | 72/380 | ARQ-E |
| 20812 | RFTJD | LIBREVILLE, GABON | 48/850 | ARQ-E3 |
| 22905 | DMK | BONN | 96/120 | ARQ-E |
| 23714.4 | ? | ? | 193/380 | ARQ-E3 |
| 23922 | RFFA | PARIS | 96/425 | ARQ-E3 |
| 24.8484 | RFLI | FDF | 96 | ARQ-M222 |

Figure 1: See if you can find the "ARQ" frequency pairs from this list.

CANADA

CBC Northern Quebec Service, 9625 kHz. Form letter for non-QSL policy. Received in 29 days for an English report. Station address: P.O. Box 6000, Montreal, Quebec, Canada H3C 3A8. (Ed Mayberry, Cedar Park, TX)

ISRAEL

KOL, 9435 kHz. Full data QSL without verification signer and program guide. Received in 118 days for an English report. Station address: P.O. Box 1082, 91 010 Jerusalem, Israel. (Mayberry, TX)

ITALY

RAI, 11800 kHz. Partial data QSL card without verification signer. Received in 113 days for an English report. Station address: Casella Postale 320, Centro Corrispondenza, 00100 Roma, Italy. (Mayberry, TX)

MONACO

Trans World Radio, 9480 kHz. Full data multicolored map card, without verification signer. Received in 23 days for an English report and two IRCs. Station address: Boite Postal 349, Monte Carlo 98007 Monaco. (John Carson, Norman, OK)

NONDIRECTIONAL BEACONS

BKL, Cleveland, Ohio, 416 kHz. Full data QSL card, with illegible verification signer. Received in 20 days for an English utility report and mint postage. Station address: Burke Lakefront Airport, Cleveland, Ohio. (Hank Holbrook, Dunkirk, MD)

CPK and IQK, Chesapeake and Louisa, Virginia. 261/382 kHz. Full data prepared QSL cards, verified by J. Myron Helms. Received in 6/13 days for an English utility report. Station address: Commonwealth of Virginia, Dept. of Aviation, P.O. box 7716, Richmond, Virginia 23231. (Holbrook, MD)

JU, West Jefferson, North Carolina, 410 kHz. Full data prepared QSL card, verified by Charles Miller, K4ULA, and James Stomp, W4LFN. Station address: Ashe County Flying Service, R.3, Box 6, Jefferson, North Carolina 28640. (Holbrook, MD)

NORTHERN MARIANA ISLANDS

KHBI-Saipan, 13625 kHz. Full data QSL card without verification signer and station souvenirs. Received in 31 days for an English report. Station address: P.O. Box 1387, Beach Road, Chalan Konoa, Saipan MP96950. (Mayberry, TX)

NORWAY

Radio Norway Int'l., 15165 kHz. Full data QSL card without verification signer and station souvenirs. Received in 33 days for an English report. Station address: 0340 Oslo 3, Norway. (Mayberry, TX)

PHILIPPINES

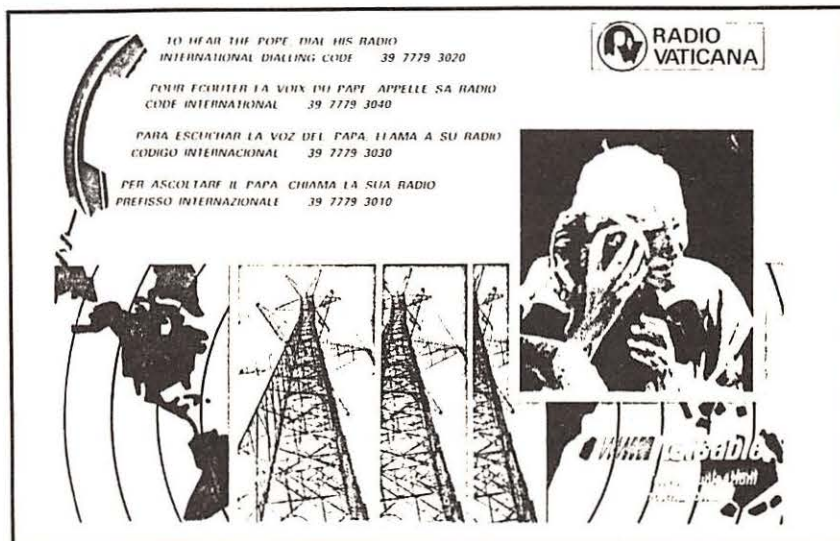
FEBC Radio International, 11650 kHz. Full data "QSL Team" card without verification signer and personal letter. Received in 118 days for an English report. Station address: Box 1, Valenzuela, Metro Manila, Philippines. (Mayberry, TX)

ROMANIA

Radio Romania, 15340 kHz. Full data costume QSL card without verification signer. Received in 87 days along with station souvenirs for an English report. Station address: Str. Nuferilor Nr. 62, Bucuresti, Romania. (Mayberry, TX)

SHIP TRAFFIC

ARONOLD MAERSK-OZGI (RO/RO) 156.65 MHz. Full data QSL letter, and quarterly magazine listing the Maersk fleet. Received in 45 days for an English utility report and



Vatican Radio sent this QSL to R. Rogers confirming his reception report.

one U.S. dollar. Ship address: A.P. Moller, Esplanaden 50, DK-1098, Copenhagen, Denmark. (Holbrook, MD)

CALCITE II-WB4520 (bulk carrier). 156.500 MHz. Full data prepared QSL card, verified by Paul M. Dubbs. Received in 24 days for an English utility report and a self-addressed stamped envelope. Ship address: c/o Marine Post Office, Detroit, Michigan 48222. (Russ Hill, Ferndale, MI)

COMEAUDOC-VCGQ (bulk carrier) 156.600 MHz. Full data prepared QSL card stamped with ship's seal and verified by Richard Belley. Received in 22 days for an English utility report and a self-addressed stamped envelope. Ship address: c/o Marine Post Office, Detroit, Michigan 48222. (Hill, MI)

DAVID K. GARDINER-VCQC (bulk carrier). 156.500 MHz. Full data prepared QSL card stamped with ship's seal and no verification signer. Received in 13 days for an English utility report and a self-addressed stamped envelope. Ship address: c/o Marine Post Office, Detroit, Michigan 48222. (Hill, MI)

GREAT HARVEST-H3XU (bulk carrier). 500 kHz. Full data prepared QSL card without verification signer. Received in 84 days for an English utility report and one U.S. dollar. Ship address: WAH TUNG Shipping Agency Ltd., China Resources Bldg. Rooms 2706 and 2707, 26 Harbor Rd., Wanchai, Hong Kong. (Holbrook, MD)

GUAYAMA-WZJG (Ex U.S. Lines container ship). 500 kHz. Full data prepared QSL card, without verification signer. Received in 30 days for an English utility report and one U.S. dollar. Ship address: Puerto Rico Marine Management, GPO 71306, San Juan, Puerto Rico 00936. (Holbrook, MD)

OCEANUS-WXAQ (research vessel) 8294.2 kHz. Full data prepared QSL card, verified by Paul Howard, master. Also included a ship photo. Received in 15 days for an English utility report and mint postage. Ship address: Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543. (Patrick O'Connor, Hinsdale, MA)

MARE LIGURE-IBOM (bulk carrier). 500 kHz. Full data prepared QSL card, without verification signer. Also included literature on ship's transmitter. Received in 62 days for an English utility report and one U.S. dollar. Ship address: D. Amico Fratelli, Via Liguria 36, 00187 Rome, Italy. (Holbrook, MD)

USS ROBISON (DDG-12) NNNOCPI 14483.5 kHz. Full data prepared QSL card, verified by RMC Robert Davis and LCDR F.L. Martin III. Also included a large ship photo and "Welcome Aboard" pamphlet. Received in 45 days for an English utility report. Ship address: FPO San Francisco, California 96677-1242. (O'Connor, NH)

ZIM MIAMA-4XID (general cargo). 500 kHz. Full data prepared QSL card, without verification signer. Received in 66 days for an English utility report and mint postage. Ship address: Zim American Israel Shipping Co., Inc., One World Trade Center, Suite 2969N, New York, New York 10048. (Holbrook, MD)

SYRIA

Radio Damascus, 12085 kHz. Full data QSL without verification signer and station souvenirs. Received in 116 days for an English report. Station address: Ommayad Square, Damascus, Syrian Arab Republic. (Mayberry, TX)

UNITED STATES

KNLS, Anchor Point, Alaska, 11715 kHz. Full data QSL card without verification signer and station souvenirs. Received in 34 days for an English report. Station address: Anchor Point, Alaska 99556. (Mayberry, TX) (Lloyd Van Horn, New Orleans, LA)

WRNO-New Orleans, Louisiana 7355/15420 kHz. Full data "Louisiana Homecoming 1990" card, and Louisiana brochures. Received in 24/96 days for an English report. Special QSL address: Lt. Gov. Paul Hardy, Louisiana Office of Tourism, P.O. Box 44243, Baton Rouge, Louisiana 70804. (Mayberry, TX) (Nicholas Adams, Newark, NJ)

Radio Marti, 9525 kHz. Full data "Jose Marti" QSL card without verification signer and personal letter. Received in 102 days for an English report. Station address: Washington D.C. 20547. (Mayberry, TX)

VATICAN STATE

Vatican Radio, 9605/9635 kHz. Full data antenna card, without verification signer. Received in 96 days for an English report. Station address: Vatican City, Vatican State, Italy. (Mayberry, TX) (Michael McFerrin, Fair Haven, MI)

MT Monitoring Team

Greg Jordan
Frequency Manager
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Brasstown, NC 28902

Kannon Shanmugam
Program Manager
P.O. Box 98
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Dave Datko
California

Jack Hubby
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John Carson
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B. W. Battin
New Mexico

Jim Frimmel
Texas

How to Use the Shortwave Guide

1: Convert your time to UTC.

Eastern and Pacific Times are already converted to Coordinated Universal Time (UTC) at the top of each page. The rule is: convert your local time to 24-hour format; add (during Daylight Savings Time) 4, 5, 6, or 7 hours for Eastern, Central, Mountain, or Pacific Time, respectively.

Note that all dates, as well as times, are in UTC: for example, the BBC's "Ken Bruce Show" (0300 UTC Sunday) will be heard on Saturday evening (8:30 PM Eastern, 5:30 PM Pacific) in North America, not on Sunday.

2: Choose a program or station you want to hear.

Some selected programs appear on the lower half of the page for prime listening hours. If it's news you're interested in, check out the complete "Newsline" listing, which begins on the next page.

Occasionally program listings will be followed by "See X 0000." This information indicates that the program is a re-run, and refers to a previous summary of the program's content. The letter stands for a day of the week, as indicated below, and the four digits represent a time in UTC.

| | |
|--------------|-------------|
| S: Sunday | H: Thursday |
| M: Monday | F: Friday |
| T: Tuesday | A: Saturday |
| W: Wednesday | |

3: Find the frequencies for the program or station you want to hear.

Look at the page which corresponds to the time you will be listening. Comprehensive frequency information for English broadcasts can be

found at the top half of the page.

The frequency listing uses the same day codes as the program listings; if a broadcast is not daily, those day codes will appear before the station name.

4: Choose the most promising frequencies for the time, location, and conditions.

Of course, every station can't be heard all the time. To help you find the right frequency, we've included information on the target area of each broadcast. Frequencies beamed toward your area will generally be easier to hear than those beamed elsewhere, even though the latter will often still be audible. Every frequency is followed by one of these target codes:

| | |
|---------------------|------------------------|
| am: The Americas | me: Middle East |
| na: North America | as: Asia |
| ca: Central America | au: Australia |
| sa: South America | pa: Pacific |
| eu: Europe | va: various |
| af: Africa | do: domestic broadcast |
| me: Middle East | om: omnidirectional |

Consult the propagation charts. To help you further find the right frequency, we've included propagation charts at the back of this section, which take into account conditions affecting the audibility of shortwave broadcasts. Simply pick out the region in which you live and find the chart for the region in which the station you want to hear is located. The chart indicates the optimum frequencies for a given time in UTC.

newsline

"Newsline" is your guide to news broadcasts on the air. ■ All broadcasts are world news reports unless followed by an asterisk, which means the broadcast is primarily national news. ■ All broadcasts are daily unless otherwise noted by the day codes.

0000 UTC
(8:00 PM EDT, 5:00 PM PDT)

BBC
 CBC, Northern Quebec [A]
 Christian Science Monitor
 Radio Australia
 Radio Beijing
 Radio Canada Int'l [S-M]
 Radio Finland [M-F]
 Radio Havana Cuba [T-S]
 Radio Korea
 Radio Luxembourg
 Radio Moscow
 Radio New Zealand Int'l [M-A]
 Radio Prague Int'l
 Radio Sofia
 Radio Thailand
 Radio Vilnius
 Spanish Foreign Radio
 Voice of America
0005
 Radio Pyongyang
0010
 Radio Beijing*
0030
 BRT, Brussels
 Christian Science Monitor (Asia)
 [M]
 Christian Science Monitor [T-F]
 HCJB
 Radio Havana Cuba [T-S]
 Radio Netherlands [T-S]
 Radio New Zealand Int'l [M-F]
 Voice of America (Americas,
 East Asia) (Special English) [T-
 S]
 Voice of America (East Asia)
 (Special English) [M]
0045
 Radio Korea (News Service)
0055
 WRNO [W, F]

0100 UTC
(9:00 PM EDT, 6:00 PM PDT)

All India Radio
 BBC
 CBC, Northern Quebec
 Christian Science Monitor
 Deutsche Welle
 FEBC Radio Int'l, Philippines
 Radio Australia
 Radio Belize
 Radio Canada Int'l [S-M]
 Radio Havana Cuba [T-S]
 Radio Japan
 Radio Kiev
 Radio Luxembourg
 Radio Moscow
 Radio New Zealand Int'l [M-A]

Radio Prague Int'l
 Radio Thailand
 Radio Yugoslavia
 Radiotelevisione Italiana
 RAE, Buenos Aires [T-A]
 Spanish Foreign Radio
 Voice of America
 Voice of Indonesia
 WWCR [T-A]
0115
 Radio Havana Cuba* [T-S]
0130
 Christian Science Monitor (Asia)
 [M]
 Christian Science Monitor [T-F]
 Radio Austria Int'l
 Radio Havana Cuba [T-S]
 Voice of Greece [M-A]
0155
 Voice of Indonesia
 WRNO [W, A]

0200 UTC
(10:00 PM EDT, 7:00 PM PDT)

BBC
 CBC, Northern Quebec [S-M]
 Christian Science Monitor
 Deutsche Welle
 FEBC Radio Int'l, Philippines
 Radio Australia
 Radio Canada Int'l [T-A]
 Radio Havana Cuba [T-S]
 Radio Luxembourg
 Radio Moscow
 Radio New Zealand Int'l [M-F]
 Radio Romania Int'l
 Radio Thailand
 Swiss Radio Int'l
 Voice of America
 Voice of Free China
 Voice of Myanmar
 WWCR [T-A]
0215
 Radio Cairo
0230
 Christian Science Monitor
 (Africa, Europe) [M]
 Christian Science Monitor [T-F]
 HCJB
 Radio Havana Cuba [T-S]
 Radio Moscow
 Radio Pakistan (Special English)
 Radio Portugal [T-A]
 Radio Tirana, Albania
 0245
 Radio Korea (News Service)

0300 UTC
(11:00 PM EDT, 8:00 PM PDT)

BBC
 CBC, Northern Quebec [T-S]
 Christian Science Monitor
 Deutsche Welle
 Radio Australia
 Radio Bahrain
 Radio Beijing
 Radio Belize
 Radio Budapest
 Radio Havana Cuba [T-S]
 Radio Japan
 Radio Moscow
 Radio New Zealand Int'l [M-F]
 Radio Prague Int'l
 Radio Thailand
 Voice of America
 Voice of Free China
 WWCR [T-A]
0309
 BBC*
0310
 Radio Beijing*
0315
 Radio Cairo
 Radio Havana Cuba* [T-S]
0330
 BBC (Africa)*
 Christian Science Monitor
 (Africa, Europe) [M]
 Christian Science Monitor [T-F]
 Radio Bahrain
 Radio Havana Cuba [T-S]
 Radio Netherlands [T-S]
 Radio Tirana, Albania
 UAE Radio, Dubai
0340
 Voice of Greece [M-A]
0350
 Radio For Peace Int'l [T-A]
 Radio Yerevan
 Radiotelevisione Italiana
0355
 Radio Japan [M-F]

0400 UTC
(12:00 AM EDT, 9:00 PM PDT)

BBC
 CBC, Northern Quebec
 Christian Science Monitor
 Deutsche Welle
 Radio Australia
 Radio Bahrain
 Radio Beijing
 Radio Canada Int'l
 Radio Havana Cuba [T-S]
 Radio Moscow
 Radio New Zealand Int'l [M-F]
 Radio Prague Int'l

Radio Romania Int'l
 Radio RSA
 Radio Sofia
 Radio Tanzania
 Radio Thailand
 Swiss Radio Int'l
 Voice of America
 Voice of Turkey
 WRNO [F]
 WWCR [T-S]
0405
 Radio Pyongyang
0410
 Radio Beijing*
0425
 Radiotelevisione Italiana
0430
 Christian Science Monitor
 (Africa, Europe, NE Asia) [M]
 Christian Science Monitor [T-F]
 Radio Bahrain
 Radio Botswana
 Radio Havana Cuba [T-S]
 Radio Tirana, Albania
0450
 Radio RSA
0455
 WYFR (Network) [T-A]

0500 UTC
(1:00 AM EDT, 10:00 PM PDT)

BBC
 CBC, Northern Quebec [T-S]
 Christian Science Monitor
 Deutsche Welle
 HCJB
 Radio Australia
 Radio Bahrain
 Radio Beijing
 Radio Havana Cuba [T-S]
 Radio Japan
 Radio Lesotho
 Radio Moscow
 Radio New Zealand Int'l [M-F]
 Radio Thailand
 Spanish Foreign Radio
 Voice of America
0510
 Radio Beijing*
 Radio Botswana
0515
 Radio Canada Int'l [M-F]
 Radio Havana Cuba* [T-S]
0530
 BBC (Africa)*
 Christian Science Monitor
 (Africa, Europe, NE Asia) [M]
 Christian Science Monitor [T-F]
 Radio Austria Int'l
 Radio Havana Cuba [T-S]

Radio Moscow (World Service)
 Radio Romania Int'l
 Radio Thailand
 UAE Radio, Dubai
 Voice of Nigeria
0550
 Radio For Peace Int'l [T-A]

0600 UTC
(2:00 AM EDT, 11:00 PM PDT)

BBC
 CBC, Northern Quebec
 Christian Science Monitor
 Deutsche Welle
 Radio Australia
 Radio Bahrain
 Radio Havana Cuba [T-S]
 Radio Moscow
 Radio New Zealand Int'l [M-A]
 Voice of America
0605
 Radio Pyongyang
0610
 Voice of Malaysia
0630
 BBC (Africa)*
 Christian Science Monitor [M-F]
 Radio Havana Cuba [T-S]
 Radio Moscow (World Service)
 Radio Polonia
 Radio Tirana, Albania
 RTV Congolaise, Brazzaville [M-
 F]
 Swiss Radio Int'l
 Voice of Nigeria
0640
 Radio Prague Int'l
0645
 Radio Romania Int'l

0700 UTC
(3:00 AM EDT, 12:00 AM PDT)

BBC
 Christian Science Monitor
 Radio Australia
 Radio Havana Cuba [T-S]
 Radio Japan
 Radio Moscow
 Radio New Zealand Int'l [M-F]
 Radio Tirana, Albania
 Voice of Free China
 Voice of Myanmar
0715
 Radio Havana Cuba* [T-S]
0730
 BBC (Africa)* [M-A]
 BRT, Brussels
 Christian Science Monitor [M-F]
 HCJB
 Radio Austria Int'l
 Radio Finland [M-A]

newsline

Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Netherlands [M-A]
Radio Prague Int'l
Radio Sofia
Swiss Radio Int'l
0755
Radio Japan [M-F]

0800 UTC
(4:00 AM EDT, 1:00 AM PDT)

BBC
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Korea
Radio Moscow
Radio New Zealand Int'l
Voice of Indonesia
0805
Radio Pyongyang
0810
Voice of Malaysia
0830
Christian Science Monitor [M-F]
Radio Moscow (World Service)
Radio Netherlands [M-A]
Swiss Radio Int'l
0840
Voice of Greece [M-A]
0855
Voice of Indonesia

0900 UTC
(5:00 AM EDT, 2:00 AM PDT)

BBC
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Finland [M-F]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Voice of Nigeria
0910
Radio Beijing*
0915
Radio Korea (News Service)
0930
Christian Science Monitor [M-F]
Deutsche Welle (Africa)* [M-F]
Radio Finland [T-A]
Radio Moscow
0950
Radio For Peace Int'l [T-A]
0955
Radio Finland [M-F]
Radio Japan [M-F]

1000 UTC
(6:00 AM EDT, 3:00 AM PDT)

All India Radio
BBC
BRT, Brussels [M-A]
Christian Science Monitor

HCJB
Radio Australia
Radio Bahrain
Radio Beijing
Radio Moscow
Radio New Zealand Int'l
Radio Tanzania
Swiss Radio Int'l
Voice of America
1010
Radio Beijing*
1030
Christian Science Monitor [M-F]
Radio Austria Int'l [M-F]
Radio Moscow
Radio Romania [M-A]
UAE Radio, Dubai
Voice of Nigeria
1040
Voice of Greece [M-A]
1055
All India Radio

1100 UTC
(7:00 AM EDT, 4:00 AM PDT)

BBC
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Japan
Radio Korea
Radio Moscow
Radio New Zealand Int'l
Radio RSA
Swiss Radio Int'l
TWR, Bonaire [M-F]
Voice of America
1105
Radio Pakistan (Special English)
Radio Pyongyang
1109
BBC*
1110
Radio Beijing*
Radio Belize [T-A]
Radio Botswana [M-F]
1115
Radio Korea (News Service)
1125
Radio Belize [M]
Radio Botswana [A-S]
1130
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Austria Int'l [M-F]
Radio Korea
Radio Lesotho
Radio Moscow
Radio Netherlands [M-A]
1135
Radio Thailand
1150
Radio For Peace Int'l [T-A]
Radio RSA
1155
Radio Japan [M-F]

1200 UTC
(8:00 AM EDT, 5:00 AM PDT)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Bras, Brasilia [M-A]
Radio Canada Int'l [M-F]
Radio Jordan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Polonia
Radio Romania Int'l
Radio Tashkent
Radio Thailand
Voice of America
WWCR [M-F]
1210
Radio Beijing*
1215
Radio Korea
1230
BRT, Brussels [S]
Christian Science Monitor [M-F]
Radio Cairo
Radio Finland [T-F]
Radio France Int'l
Radio Moscow
TWR, Bonaire [A]
1235
Voice of Greece

1300 UTC
(9:00 AM EDT, 6:00 AM PDT)

BBC ("Newshour")
CBC, Northern Quebec [A-S]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize
Radio Canada Int'l [S]
Radio Moscow
Radio Romania Int'l
Radio Tanzania [A-S]
Radio Tirana, Albania
Radio Yugoslavia
Swiss Radio Int'l
TWR, Bonaire [S-F]
Voice of America
WWCR [M-F]
1305
Radio Pyongyang
1310
Radio Beijing*
1325
HCJB [M-F]
1328
Radio Cairo
1330
All India Radio
Christian Science Monitor [M-F]
FEBC Radio Int'l, Philippines
Radio Austria Int'l
Radio Canada Int'l
Radio Finland [M-F]

Radio Korea (News Service)
Radio Moscow
Radio Tashkent
Swiss Radio Int'l
UAE Radio, Dubai
Voice of America (Special English)
Voice of Turkey
1346
All India Radio (UN News) [A]
1355
WYFR (Network) [M-F]

1400 TC
(10:00 AM EDT, 7:00 AM PDT)

BBC
BRT, Brussels [M-A]
CBC, Northern Quebec
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Finland [A]
Radio France Int'l
Radio Japan
Radio Jordan
Radio Korea
Radio Moscow
Voice of America
WWCR [M-F]
1405
Radio Pyongyang
1410
Radio Beijing*
1425
HCJB [M-F]
1430
Christian Science Monitor [M-F]
FEBC Radio Int'l, Philippines
Kol Israel
Radio Austria Int'l [M-F]
Radio Finland [S-F]
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
1445
BBC (East Asia) (Special English) [M-F]
Voice of Myanmar
1455
All India Radio

1500 UTC
(11:00 AM EDT, 8:00 AM PDT)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-A]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio Romania Int'l

Radio RSA
Voice of America
WWCR [M-F]
1505
Radio Finland
Radio Pyongyang
1510
Radio Beijing*
1530
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
FEBC, Seychelles
FEBC Radio Int'l, Philippines
Radio Moscow
Radio Sofia
Radio Tirana, Albania
Swiss Radio Int'l
Voice of Greece [M-A]
Voice of Nigeria
1545
Radio Korea (News Service)

1600 UTC
(12:00 PM EDT, 9:00 AM PDT)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Canada Int'l
Radio France Int'l
Radio Jordan
Radio Korea
Radio Lesotho
Radio Moscow
Radio Polonia
Radio Portugal [M-F]
Radio RSA
Radio Tanzania
Voice of America
Yemen Radio
1609
BBC*
1610
Radio Beijing*
Radio Botswana [M-F]
1630
Christian Science Monitor [M-F]
Radio Austria Int'l
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
UAE Radio, Dubai
Voice of America (except Africa) (Special English)

1700 UTC
(1:00 PM EDT, 10:00 AM PDT)

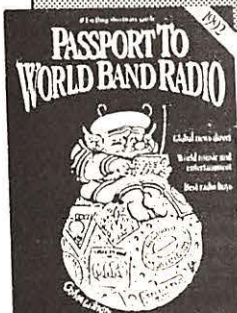
BBC
CBC, Northern Quebec [A]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l

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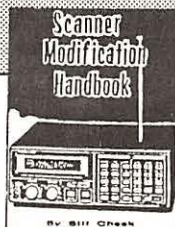


1992 Passport TO WORLD BAND RADIO

With nearly 80,000 copies sold last year, Passport for '92 is "the" SWL reference book. Packed with by-

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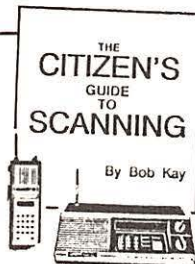
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Citizen's GUIDE TO SCANNING

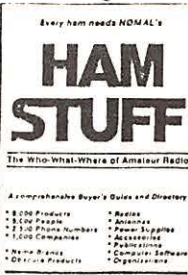
Hear more on your scanner, like fire and police, cordless phone calls, sporting events, business dealings and federal activity. It's all



here! \$12.95 (1 lb.)

Ham Stuff

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Report with each order

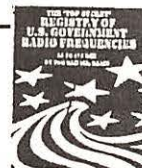
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Tune in, identify even QSL these radio bandits. A real behind the scenes look at what some say is the last fresh air on SW. \$12.95. (1 lb.)



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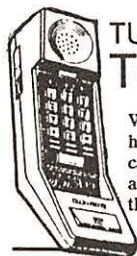


STREET RADIO DIRECTORY

A comprehensive listing of more than 11,000 AM, FM and SW

broadcast stations in US, Canada and Mexico. Includes: frequency, format, ownership, facility info, hours of operation, address, market info, more. The most complete source at a reasonable price. Cross-referenced. \$29.95 (3 lbs.)

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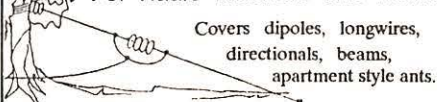
OFFICIAL AERO Frequency Directory

Covers HF, VHF, UHF military bands. Listed by community; gives frequency, general info, FCC freq allocation charts, more. \$19.95 (3 lbs.)

OFFICIAL AERONAUTICAL Frequency Directory



EASY-UP ANTENNAS For Radio Listeners and Hams



Covers dipoles, longwires, directionals, beams, apartment style ants. Helps you decide on the right one, then build it, step-by-step. Illustrated. \$16.95. (2 lbs.)

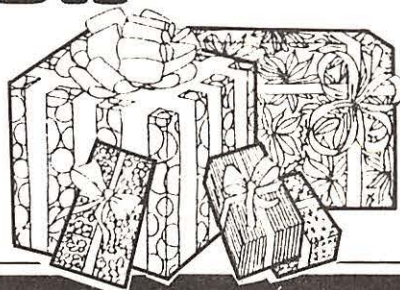


Shortwave Listening GUIDEBOOK

Shortwave bridges the continents. Be a part of it. Get the overview, a look at the broadcasters, explanation of the SW bands, etc. Proven advice. \$16.95 (1 lb.)

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newsline

Radio Japan
Radio Jordan
Radio Moscow
Radio RSA
Voice of America
WWCR [M-F]
1705
Radio Pyongyang
1709
BBC (Africa)* [A-S]
1710
Radio Beijing*
1715
Radio Korea (News Service)
1725
Radio Surinam Int'l [M-F]
1730
Christian Science Monitor [M-F]
Radio Moscow
Radio Romania Int'l
WYFR (Network) [A]
1735
WYFR (Network) [M-F]
1740
BBC (Africa)* [M-F]
1750
Radio RSA

1800 UTC
(2:00 PM EDT, 11:00 AM PDT)

All India Radio
BBC
CBC, Northern Quebec [A]
Christian Science Monitor
Kol Israel
KVOH
Radio Australia
Radio Bahrain
Radio Belize [M-F]
Radio Bras, Brasilia [M-A]
Radio Canada Int'l
Radio Korea
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Prague Int'l
Radio Tanzania
RAE, Buenos Aires [M-F]
Voice of America
1803
Radio Cote d' Ivoire, Abidjan [M-A]
1815
Radio Cote d' Ivoire, Abidjan [M-A]
1825
WYFR (Network) [A]
1830
BRT, Brussels
Christian Science Monitor [M-F]
Radio Belize
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
Radio Sofia
Radio Tirana, Albania
Swiss Radio Int'l
Voice of America (Special English)

1840
SLBC, Sri Lanka
Voice of Greece
1855
BBC (Africa)* [M-F]

1900 UTC
(3:00 PM EDT, 12:00 PM PDT)

All India Radio
BBC
CBC, Northern Quebec [M-F]
Christian Science Monitor [M-A]
Deutsche Welle
HCJB
KVOH
Radio Australia
Radio Beijing
Radio Canada Int'l
Radio Havana Cuba [M-A]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Tanzania
Spanish Foreign Radio
Voice of America
WWCR [A]
1910
Radio Beijing*
Radio Botswana
1920
Voice of Greece
1930
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Austria Int'l
Radio Finland
Radio Havana Cuba [M-A]
Radio Moscow
Radio Prague Int'l
Radio Romania Int'l
Radio Sofia
Radio Yugoslavia
Voice of Nigeria
1935
Radiotelevisione Italiana
1945
Radio Korea (News Service)
1955
WYFR (Network) [M-A]

1910
Radio Beijing*
Radio Botswana
1920
Voice of Greece
1930
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Austria Int'l
Radio Finland
Radio Havana Cuba [M-A]
Radio Moscow
Radio Prague Int'l
Radio Romania Int'l
Radio Sofia
Radio Yugoslavia
Voice of Nigeria
1935
Radiotelevisione Italiana
1945
Radio Korea (News Service)
1955
WYFR (Network) [M-A]

2000 UTC
(4:00 PM EDT, 1:00 PM PDT)

BBC
Christian Science Monitor
Kol Israel
KVOH
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Havana Cuba [M-A]
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Polonia
Swiss Radio Int'l
Voice of America
Voice of Indonesia
Voice of Nigeria

2005
Radio Pyongyang
2010
Radio Beijing*
2025
Radio Havana Cuba* [M-A]
Radiotelevisione Italiana
2030
Christian Science Monitor [M-F]
Radio Havana Cuba [M-A]
Radio Korea
Radio Moscow
Radio Netherlands [M-A]
2045
Radio Korea (News Service)
2055
Radio Finland
Voice of Indonesia

2100 UTC
(5:00 PM EDT, 2:00 PM PDT)

All India Radio
BBC ("Newshour")
CBC, Northern Quebec [S-F]
Christian Science Monitor [M-A]
Deutsche Welle
KVOH
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Portugal [M-F]
Radio Prague Int'l
Radio Romania Int'l
Spanish Foreign Radio
Swiss Radio Int'l
Voice of America
Voice of Turkey
2110
Radio Beijing*

2125
WYFR (Network) [M-F]
2130
Christian Science Monitor [M-F]
Radio Cairo
Radio Canada Int'l
Radio Moscow
Radio Sofia
WYFR (Network) [A]
2150
Radio For Peace Int'l [M-F]

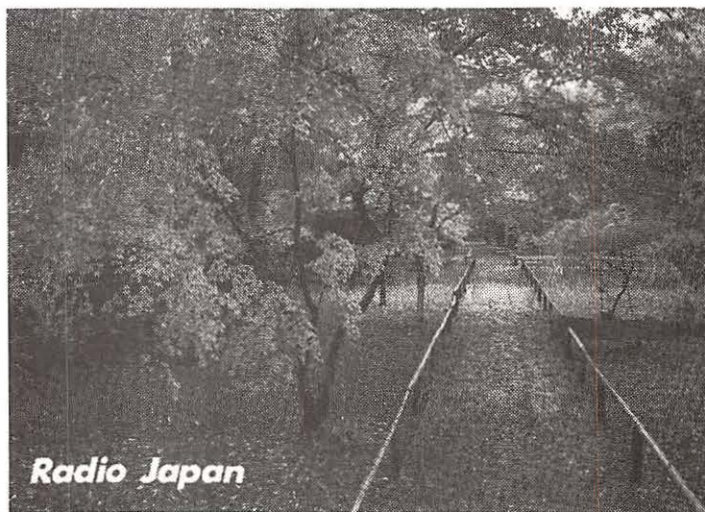
2200 UTC
(6:00 PM EDT, 3:00 PM PDT)

All India Radio
BBC
BRT, Brussels
CBC, Northern Quebec [S-F]
Christian Science Monitor
Radio Australia
Radio Beijing
Radio Budapest
Radio Canada Int'l
Radio Havana Cuba [M-A]
Radio Kiev
Radio Moscow
Radio New Zealand Int'l
Radio Portugal [M-F]
Radio Prague Int'l
Radio Yugoslavia
Radiotelevisione Italiana
Voice of America
Voice of Free China
WWCR [M-F]
2208
Voice of America (Caribbean)*
2210
Radio Beijing*
2225
Radio Havana Cuba* [M-A]
2230
Christian Science Monitor [M-F]

Kol Israel
Radio Finland
Radio Havana Cuba [M-A]
Radio Moscow
Radio Polonia
Radio Sofia
Radio Tirana, Albania
Swiss Radio Int'l
Voice of America (Special English)
WYFR (Network) [M-F]
2245
Voice of Greece
2255
WYFR (Network) [M-A]

2300 UTC
(7:00 PM EDT, 4:00 PM PDT)

BBC
CBC, Northern Quebec [M-F]
Christian Science Monitor [M-A]
Radio Australia
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio New Zealand Int'l
Voice of America
Voice of Turkey
2305
Radio Polonia
Radio Pyongyang
2315
All India Radio
2320
Radio Thailand
jChristian Science Monitor [M-F]
Radio Moscow
Radio Tirana, Albania
Radio Vilnius
Radio For Peace Int'l [M-F]
2355
Radio Japan [M-F]



This Radio Japan QSL was contributed by Donald M. Choleva, Euclid, OH.



from
ICOM

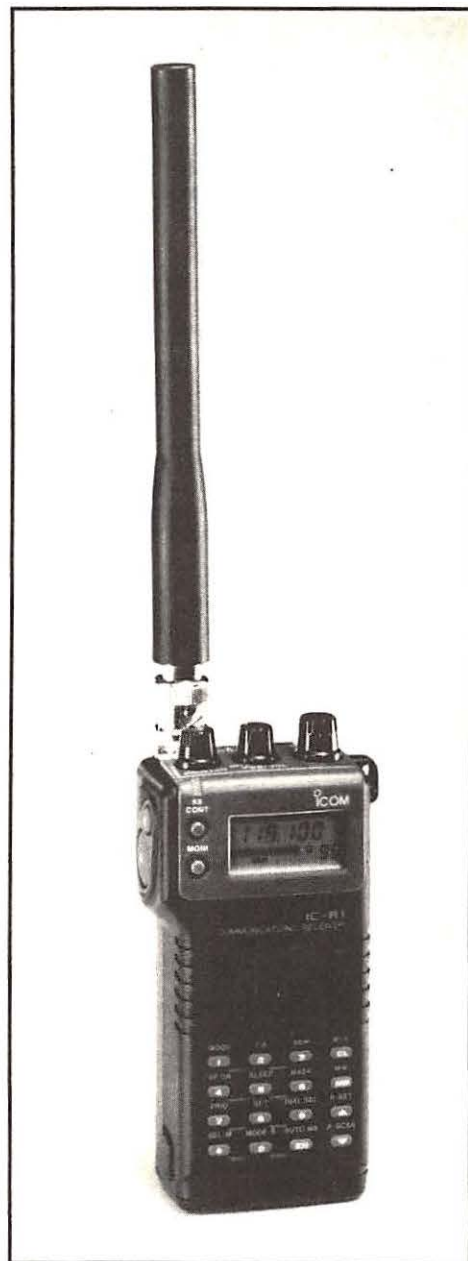
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- **Built-in-Clock.** More advanced functions of ICOM's IC-R1 include a 24 hour clock with automatic timer. Your receiver can turn itself on or off. Super convenient for scheduled listening!
- **Other Features.** The world's smallest full-featured handheld receiver, ICOM's IC-R1 is also equipped with a power saver function, adjustable LCD contrast, signal indicator, external DC power jack with battery charge capability plus a large variety of other options from the "S" series handhelds.



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0000 UTC

[8:00 PM EDT/5:00 PM PDT]

FREQUENCIES

| | | | | | | | | | | | |
|-----------------|------------------------|---------|---------|---------|---------|------------------|---------------------------|---------|---------|---------|---------|
| 0000-0100 | ABC Brisbane | 4920do | 9660do | | | | | 17860na | 17890na | 21690na | 21710na |
| 0000-0100 | ABC Perth | 9610do | | | | | | 21790na | 21845na | | |
| 0000-0100 | All India Radio, Delhi | 9535as | 9910as | 11715as | 11745as | 0000-0100 smtwfh | Radio New Zealand Int'l | 17770pa | | | |
| | | 15110as | | | | 0000-0030 stwhfa | Radio Prague | 7345na | 11685na | 11990na | |
| 0000-0100 | AWR Costa Rica | 9725ca | 11870ca | | | 0000-0100 | Radio Pyongyang | 11335na | 13775na | 15115na | |
| 0000-0030 | BBC London | 5965as | 5975na | 6005sa | 6175na | 0000-0100 | Radio Sofia, Bulgaria | 11660eu | 11710na | 15110eu | 15330na |
| | | 6195as | 7145as | 7325na | 9580as | | | 15370eu | 17825na | | |
| | | 9590na | 9915na | 11750sa | 11945as | 0000-0100 | Radio Thailand | 4830as | 9655as | 11905as | |
| | | 11955as | 12095na | 15070na | 15260sa | 0000-0100 | RTM Malaysia | 7295do | | | |
| | | 15360pa | 17830as | | | 0000-0100 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | |
| 0000-0100 | CFCX Montreal | 6005do | | | | 0000-0100 | SLBS, Sierra Leone | 3316do | | | |
| 0000-0100 | CFRX Toronto | 6070do | | | | 0000-0100 | Spanish Foreign Radio | 9630na | | | |
| 0000-0100 twhf | Croatian Radio, Zagreb | 7315eu | 9495eu | | | 0000-0100 | Voice of America | 5995ca | 6130ca | 9455ca | 9775ca |
| 0000-0100 | CSM World Svc, Boston | 7395na | 9850na | 13760na | 17555na | | | 9815ca | 11580ca | 11695ca | 15205ca |
| | | 17865va | | | | 0000-0100 | Voice of America | 7120as | 7405as | 9770as | 11760as |
| 0000-0100 | FEBC Manila | 15480as | | | | | | 15185as | 15290as | 17735as | 17820as |
| 0000-0100 | KTNB Salt Lake City | 15590am | | | | 0000-0100 | WHRI Noblesville, Indiana | 7315am | 9495am | | |
| 0000-0100 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na | 0000-0100 | WINB Red Lion, Penn. | 15145eu | | | |
| 0000-0100 | Radio Australia | 11880va | 11930va | 13605va | 15160va | 0000-0100 | WRNO New Orleans | 7355am | | | |
| | | 15240va | 15320va | 17630va | 17715va | 0000-0100 | WWCR Nashville | 7520na | | | |
| | | 17750va | 17795va | 21740va | | 0000-0100 | WYFR, Okeechobee, Florida | | 5985am | | |
| 0000-0100 | Radio Beijing | 11705am | 15110am | 15285am | | 0030-0100 | BBC London | 5965as | 5975na | 6005sa | 6175na |
| 0000-0030 mtwhf | Radio Canada Int'l | 5960na | 9755na | 13760na | | | | 7135as | 7325na | 9580as | 9590na |
| 0000-0100 sm | Radio Canada Int'l | 5960na | 9755na | | | | | 9915na | 11750sa | 11955as | 12095na |
| 0000-0100 | Radio Havana Cuba | 11950am | | | | | | 15260sa | 15360pa | | |
| 0000-0100 | Radio Korea, Seoul | 15575na | | | | 0030-0100 | BRT Brussels | 13655na | 13710na | | |
| 0000-0100 | Radio Luxembourg | 6090om | 15350om | | | 0030-0100 | HCJB Quito, Ecuador | 9745am | 15155am | 21455am | 25950am |
| 0000-0100 | Radio Moscow NAS | 9480na | 11690na | 11710na | 11730na | 0030-0100 | Hunan PBS Changs ha China | | 4990do | | |
| | | 11780na | 11850na | 11985na | 12005na | 0030-0100 | Radio Netherlands | 6020am | 6165am | 15560am | |
| | | 12050na | 13605na | 13775na | 15140na | 0030-0100 | Sri Lanka B'casting Corp. | 6005as | 9720as | 15425as | |
| | | 15290na | 15355na | 15410na | 15425na | 0040-0050 twhf | R Nacional de Venezuela | 9540om | | | |
| | | 15480na | 15550na | 15570na | 15580na | 0050-0100 | Vatican Radio | 6150na | 9605na | | |
| | | 15590na | 15595na | 16190na | 17600na | | | | | | |
| | | 17620na | 17675na | 17730na | 17850na | | | | | | |

SELECTED PROGRAMS

Sundays

- 0015 Radio Korea: News Commentary. Opinion on developments in Korea and worldwide.
- 0020 Radio Korea: Sites and Sounds. A look at Korea's tourist attractions and industry.
- 0030 BBC: The Ken Bruce Show. Ken Bruce plays pop music, past and present.
- 0030 Radio Australia: Book Reading. Serialized readings from popular books.
- 0035 Radio Korea: From Us to You. Listener letters, questions, and comments, interspersed with Korean music.
- 0037 Radio Netherlands: Newslines. News analysis from correspondents worldwide.
- 0052 Radio Netherlands: Rembrandt Express. Barry O'Dwyer presents a magazine program.

Mondays

- 0015 Radio Korea: Echoes of Korean Music.
0030 BBC: In Praise Of God. Christian religious
services and meditations.
0030 Radio Australia: Just Out. Rob Hoskin plays
recent Australian music releases.
0030 Radio Netherlands: Happy Station.
0035 Radio Korea: Shortwave Feedback.

Tuesdays

- 0015 Radio Korea: News Commentary. See S 0015.

- 0020 Radio Korea: Seoul Calling.
0030 BBC: Panel Game. "The Litmus Test" contests
pinks vs. blues in a science quiz (1st/8th/15th/
22nd); "Where In The World?" is a global
geography quiz (through December 3rd).
0030 Radio Australia: Music/Information. See S 0330.
0037 Radio Netherlands: Newslne. See S 0037.
0040 Radio Korea: Let's Learn Korean!
0045 Radio Korea: Sports Roundup.
0052 Radio Netherlands: The Research File.

Wednesdays

- 0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Seoul Calling.
0030 BBC: Omnibus. Topical features on almost any
topic, from Dracula to drugs.
0030 Radio Australia: Music/Information. See S 0330.
0037 Radio Netherlands: Newsline. See S 0037.
0040 Radio Korea: Let's Learn Korean!
0045 Radio Korea: Korean Cultural Variety.
0052 Radio Netherlands: Images.

Thursdays

- 0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Seoul Calling.
0030 BBC: Comedy Show. See W 1530.
0030 Radio Australia: Music/Information. See S 0330.

- 0037 Radio Netherlands: Newslines. See S 0037.
0040 Radio Korea: Let's Learn Korean!
0045 Radio Korea: Pulse of Korea.
0052 Radio Netherlands: Feature.

Fridays

- 0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Seoul Calling.
0030 BBC: Music Feature. In "Conductors At Work,"
Elizabeth Francis talks to conductors about their
profession (through November 8th).
0030 Radio Australia: Music/Information. See S 0030.
0037 Radio Netherlands: Newslire. See S 0037.
0040 Radio Korea: Let's Learn Korean!
0045 Radio Korea: Focus This Week.
0052 Radio Netherlands: Media Network.

Saturdays

- 0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Let's Sing Together.
0030 BBC: From The Weeklies. A review of the British weekly press.
0030 Radio Australia: Word Of Mouth. See M 1445.
0037 Radio Netherlands: *Newsline*. See S 0037.
0045 BBC: Recording Of The Week. See M 0545.
0045 Radio Korea: Listeners' Forum.
0052 Radio Netherlands: Dutch Rock.

0100 UTC

[9:00 PM EDT/6:00 PM PDT]

FREQUENCIES

| | | | | |
|--------------|--------------------------|---------|---------|-----------------|
| 0100-0200 | ABC Brisbane | 4920do | 9660do | |
| 0100-0200 | ABC Perth | 9610do | | |
| 0100-0115 | All India Radio, Delhi | 9535as | 9910as | 11715as 11745as |
| | | 15110as | | |
| 0100-0200 | BBC London | 5965as | 5975na | 6005sa 6175na |
| | | 7135as | 7325na | 9580as 9590na |
| | | 9915na | 11750sa | 11955as 12095na |
| | | 15260sa | 15280as | 15360pa 21715as |
| 0100-0200 | CFCX Montreal | 6005do | | |
| 0100-0200 | CFRX, Toronto | 6070do | | |
| 0100-0200 | CKZU Vancouver | 6160do | | |
| 0100-0200 m | Croatian Radio, Zagreb | 7315eu | 9495eu | |
| 0100-0200 | CSM World Svc, Boston | 7395na | 9850na | 13760na 17555na |
| | | 17865va | | |
| 0100-0150 | Deutsche Welle, Köln | 6040na | 6085na | 6145na 11865na |
| | | 11890na | 13610na | 13770na 15105na |
| | | 15425na | | |
| 0100-0200 | FEBC Manila | 15480as | | |
| 0100-0200 | HCJB Quito, Ecuador | 9745am | 15155am | 21455am 25950am |
| 0100-0200 | KTBN Salt Lake City | 7510na | | |
| 0100-0130 | Nat'l Radio of Laos | 7112as | | |
| 0100-0200 | R. for Peace Int'l | 7375na | 13630na | 15030na 21465na |
| 0100-0200 | Radio Australia | 11880va | 11930va | 15160va 15240va |
| | | 15320va | 17630va | 17715va 17750va |
| | | 17795va | 21525va | 21740va 21775va |
| 0100-0130 | Radio Canada Int'l | 9535am | 9755am | 11845am 11940am |
| | | 13720am | | |
| 0100-0200 sm | Radio Canada Int'l | 9535ca | 9755ca | 11845ca 11940ca |
| | | 13720ca | | |
| 0100-0150 | Radio Federal Yugoslavia | | 9620na | 11735na |
| 0100-0200 | Radio Havana Cuba | 11950am | | |
| 0100-0200 | Radio Japan, Tokyo | 5960na | | |
| 0100-0200 | Radio Kiev | 11675na | 11790na | 15180na 15455na |
| | | 15485na | 15525na | |
| 0100-0200 | Radio Moscow | 9480va | 11690va | 11710na 11780va |
| | | 11850na | 11920va | 11980va 12005va |
| | | 12050va | 13605va | 13775va 15140va |
| | | 15290va | 15315va | 15410va 15425va |

| | | | | | |
|------------------|---------------------------|---------|---------|---------|---------|
| 0100-0200 | Radio Moscow | 15480va | 15550va | 15580va | 15590va |
| | | 9600na | 9685na | 9720na | 11730na |
| | | 11750na | 5595va | 16190va | 17600va |
| | | 17605na | 17620va | 17730va | 17850va |
| | | 17860va | 17890va | 21635va | 21690va |
| | | 21790va | 21845va | | |
| 0100-0125 | Radio Netherlands | 6020am | 6165am | 15560am | |
| 0100-0200 | Radio New Zealand Int'l | 17770pa | | | |
| 0100-0130 sm | Radio Norway | 11925na | 15360na | | |
| 0100-0130 | Radio Prague | 5930na | 7345na | 11685na | |
| 0100-0130 | Radio Sweden | 9765as | | | |
| 0100-0200 | Radio Thailand | 4830as | 9655as | 11905as | |
| 0100-0130 | Radio Vilnius, Lithuania | 11675na | 11790na | 15180na | 15455na |
| | | 15485na | | | |
| 0100-0200 twfha | RAE Buenos Aires | 11710na | | | |
| 0100-0120 | RAI, Rome | 9575am | 11800am | | |
| 0100-0200 smtwh | RTM Malaysia | 7295do | | | |
| 0100-0200 | SBC Radio 1, Singapore | 5052do | 11940do | | |
| 0100-0200 | SLBS, Sierra Leone | 3316do | | | |
| 0100-0200 | Spanish Foreign Radio | 9630na | | | |
| 0100-0200 | Sri Lanka B'casting Corp. | 6005as | 9720as | 15425as | |
| 0100-0105 | Vatican Radio | 6150na | 9605na | | |
| 0100-0200 | Voice of America | 5995ca | 6130ca | 9455ca | 9775ca |
| | | 9815ca | 11580ca | 15205ca | |
| 0100-0200 | Voice of America | 6095va | 6125va | 7115as | 7170as |
| | | 7205as | 7405as | 11705as | 15120as |
| | | 15160as | 15250as | 17740as | 21550as |
| 0100-0200 | Voice of Indonesia | 11752as | 11785as | | |
| 0100-0200 | WHRI Noblesville, Indiana | | 7435am | | |
| 0100-0200 | WINB Red Lion, Penn. | 15145na | | | |
| 0100-0200 | WRNO New Orleans | 7355na | | | |
| 0100-0200 | WWCR Nashville | 7520na | | | |
| 0100-0200 | WYFR Okeechobee | 6065na | 9505na | 11855na | 15440na |
| 0130-0200 mwf | Alma Alta Radio, Khazak. | 5035do | 5915do | 6135do | |
| 0130-0200 | Radio Austria Int'l | 9870sa | 9875na | 13730na | |
| 0130-0200 | Radio Tashkent | 7335na | | | |
| 0130-0200 | United Arab Emirates R. | 11795na | 13695eu | 15320eu | 15435eu |
| 0130-0140 mtwhfa | Voice of Greece | 9395am | 9420am | 11645am | |
| 0145-0200 | Vatican Radio | 7125as | 9650as | 11750as | 11890as |

SELECTED PROGRAMS

Sundays

- 0101 BBC: Play Of The Week. This month's drama: "Mrs. Klein" (6th, starts at 0030 UTC); Joyce Cary's "The Horse's Mouth" (through 27th).
- 0109 Deutsche Welle: Commentary. Opinion on current issues.
- 0117 Deutsche Welle: Mailbag or Nickelodeon. Listener letters, or listener requests for German music.
- 0130 Radio Australia: At Your Request. Dick Paterson plays music requests.
- 0134 Deutsche Welle: German by Radio. An advanced German language course for English speakers.

Mondays

- 0101 BBC: Feature/Drama. It's back — Mozart, Strauss, Tchaikovsky, and Purcell are the "Opera of the Week" (through 28th).
- 0109 Deutsche Welle: Commentary. See S 0109.
- 0116 Deutsche Welle: Living in Germany. A weekly look at the social scene in Germany.
- 0130 Radio Australia: Music/Information. See S 0330.
- 0134 Deutsche Welle: Larry's Random Selection. Larry Wayne takes a look at Germany from the lighter side.
- 0145 BBC: Classical Music. Cameos of English composers can be heard on "English Songsmiths" (7th), followed by a re-run of "Cole Porter Among Friends" (through December 2nd).

Tuesdays

- 0105 BBC: Outlook. See M 1405.
- 0109 Deutsche Welle: European Journal. See M 0209.
- 0130 BBC: Folk In Britain. Great news: The latest in folk music from Britain isn't every other week anymore!
- 0130 Radio Australia: Music/Information. See S 0330.
- 0134 Deutsche Welle: Transatlantic Diary. Cultural, science, and economic developments between the U and Germany.
- 0145 BBC: Health Matters. New medical developments and methods of keeping fit.

Wednesdays

- 0105 BBC: Outlook. See M 1405.
- 0109 Deutsche Welle: European Journal. See M 0209.
- 0130 BBC: Talks. "After The War Was Over" looks at the aftermath of the Gulf War (through Nov. 20th).
- 0130 Radio Australia: Music/Information. See S 0330.
- 0134 Deutsche Welle: Transatlantic Diary. See T 0134.
- 0145 BBC: Country Style. David Allan profiles the country music scene on both sides of the pond.

Thursdays

- 0105 BBC: Outlook. See M 1405.
- 0109 Deutsche Welle: European Journal. See M 0209.
- 0130 BBC: Waveguide. See M 0530.
- 0130 Radio Australia: Music/Information. See S 0330.
- 0134 Deutsche Welle: Transatlantic Diary. See T 0134.

- 0140 BBC: Book Choice. A short review of a recently released book.
- 0145 BBC: The Farming World. Agricultural news and technological innovations for farmers.

Fridays

- 0105 BBC: Outlook. See M 1405.
- 0109 Deutsche Welle: European Journal. See M 0209.
- 0130 BBC: Seven Seas. Malcolm Billings presents news about ships and the sea.
- 0130 Radio Australia: Music/Information. See S 0330.
- 0134 Deutsche Welle: Transatlantic Diary. See T 0134.
- 0145 BBC: Global Concerns. An update on environmental issues.

Saturdays

- 0105 BBC: Outlook. See M 1405.
- 0109 Deutsche Welle: European Journal. See M 0209.
- 0130 BBC: Short Story. Drama written by BBC listeners (except 5th: Seeing Stars, a monthly series on astronomy).
- 0130 Radio Australia: Music/Information. See S 0330.
- 0134 Deutsche Welle: Through German Eyes. See S 1513.
- 0145 BBC: Jazz Now And Then. George Reid presents a weekly — yes, weekly — mixture of new releases, old tracks, and interviews.

0200 UTC

[10:00 PM EDT/7:00 PM PDT]

FREQUENCIES

| | | | | | |
|-----------------|-------------------------|---------|---------|---------|---------|
| 0200-0300 | ABC Brisbane | 4920do | 9660do | | |
| 0200-0300 | ABC Perth | 200 | 6070do | 9610do | |
| 0200-0230 | BBC London | 5975na | 6005sa | 6175na | 6195eu |
| | | 7135sa | 7325na | 9410eu | 9580as |
| | | 9590na | 9670me | 9915na | 11750sa |
| | | 11955as | 12095va | 15260sa | 15280as |
| | | 15360pa | 15380as | 21715as | |
| 0200-0300 | CKZU Vancouver | 6160do | | | |
| 0200-0300 | CSM World Svc, Boston | 9455eu | 9850eu | 13760eu | 17555eu |
| | | 17865va | | | |
| 0200-0250 | Deutsche Welle | 7285sa | 9615as | 9690as | 11945as |
| | | 11965as | 15235as | | |
| 0200-0230 | FEBC Manila | 15480as | | | |
| 0200-0300 | HCJB Quito | 9745na | 15155na | 17875sa | |
| 0200-0300 as | KSDA Guam | 13720as | | | |
| 0200-0300 | KTVN Salt Lake City | 7510am | | | |
| 0200-0300 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na |
| 0200-0300 | Radio Australia | 11880va | 11930va | 15160va | 15240va |
| | | 15320va | 17630va | 17715va | 17750va |
| | | 17795va | 21525va | 21740va | 21775va |
| 0200-0300 | Radio Budapest | 6110na | 9835na | 11910na | |
| 0200-0300 | Radio Cairo | 9475na | 9675na | | |
| 0200-0300 twhfa | Radio Canada Int'l | 9535ca | 9755ca | 11845ca | 11940ca |
| | | 13720ca | | | |
| 0200-0300 | Radio Cultura,Guatemala | | 3300do | | |
| 0200-0230 | Radio Finland | 15185na | 15430na | | |
| 0200-0300 | Radio Havana Cuba | 11950am | 15140na | | |
| 0200-0300 | Radio Luxembourg | 15350om | | | |
| 0200-0300 | Radio Moscow NAS | 4895na | 11690va | 11710na | 11780va |
| | | 11835va | 11850na | 11980va | 12005va |
| | | 12050va | 13605va | 15140va | 15290va |
| | | 15315va | 15320va | 15410va | 15415va |
| | | 15425va | 15480va | 15540va | 15550va |
| 0200-0300 | Radio Moscow NAS | 9530na | 9600na | 9685na | 9720na |
| | | 11730na | 11750na | 15580va | 15590va |
| | | 15595va | 16190va | 17600va | 17620va |
| | | 17730va | 17850va | 17860va | 17890va |
| | | 21635va | 21690va | 21790va | 21845va |

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|------------------|---------------------------|---------|---------|---------|---------|--|
| 0200-0300 | Radio New Zealand Int'l | 17770pa | | | | |
| 0200-0230 sm | Radio Norway | 15360na | | | | |
| 0200-0300 | Radio Romania Int'l | 5990am | 6155am | 9570am | 11830am | |
| | | 11940am | 15380am | | | |
| 0200-0230 | Radio Sweden | 9695na | 11705na | | | |
| 0200-0300 | Radio Thailand | 4830as | 9655as | 11905as | | |
| 0200-0300 smtwh | RTM Malaysia | 7295do | | | | |
| 0200-0300 | SBC Radio 1, Singapore | 5052do | 11940do | | | |
| 0200-0300 | SLBS, Sierra Leone | 3316do | | | | |
| 0200-0230 | Sri Lanka B'casting Corp. | | 6005as | 9720as | 15425as | |
| 0200-0230 | Swiss Radio Int'l | 6125am | 6135am | 9650am | 9885am | |
| | | 12035am | 17730am | | | |
| 0200-0300 | V. of Free China, Taiwan | 5950na | 9680na | 9765pa | 11740ca | |
| | | 11860as | 15345as | | | |
| 0200-0230 mtwhf | Voice of America | 5995ca | 9775ca | 9815ca | 11580ca | |
| | | 15205ca | | | | |
| 0200-0300 | Voice of America | 7115as | 7205as | 11705as | 15115as | |
| | | 15160as | 15250as | 17740as | 21550as | |
| 0200-0230 mtwhfa | Voice of Kenya | 4935do | | | | |
| 0200-0300 | WHRI Noblesville | 7435na | 9495sa | | | |
| 0200-0300 | WINB Red Lion | 15145eu | | | | |
| 0200-0300 | WRNO New Orleans | 7355am | | | | |
| 0200-0300 | WWCR Nashville | 7520na | | | | |
| 0200-0300 | WYFR Okeechobee | 6065na | 9505am | 15440na | | |
| 0230-0300 | BBC London | 5975na | 6005sa | 6175na | 6195eu | |
| | | 7135me | 7325na | 9410eu | 9670me | |
| | | 9915na | 11750sa | 11955me | 12095va | |
| | | 15260sa | 15280as | 15360pa | 21715as | |
| 0230-0245 | Radio Pakistan | 9545as | 15115as | 17640as | | |
| 0230-0300 | Radio Pilipinas, Manila | 17760pa | 17840pa | 21580pa | | |
| 0230-0300 | Radio Tirana | 9580na | 11825na | | | |
| 0230-0300 | Sri Lanka B'casting Corp. | 9720as | 15425as | | | |
| 0230-0300 s | Voice of Kenya | 4935do | | | | |
| 0240-0300 | Radio 2, Zambia | 6165do | 7235do | | | |
| 0245-0300 | Radio Korea | 15575va | | | | |
| 0249-0300 | Radio Yerevan, Armenia | 11675na | 11790na | 15180na | 15455na | |
| | | 15485na | | | | |
| 0250-0300 | Vatican Radio | 7305na | 9615na | 11625na | | |

SELECTED PROGRAMS

Sundays

0209 Deutsche Welle: Commentary. See S 0109.

0213 Deutsche Welle: Sports Report. The latest news from the world of sports.

0219 Deutsche Welle: Mailbag Asia. Musical requests and answers to listener questions.

0230 BBC: Feature. Among the offerings this month, "Second Time Around," a look at the British antique business (13th) and "A Sight Worth Seeing," Britain's famous landmarks (through Nov. 24th).

0230 Radio Australia: Fine Music Australia. Jocelyne Terry presents the best in Australian classical music.

Mondays

0209 Deutsche Welle: European Journal. A review of major events in Europe, with interviews and analyses.

0230 BBC: Composer Of The Month. Profiles of famous composers; this month, Maurice "Bolero" Ravel.

0230 Radio Australia: Music/Information. See S 0330.

0234 Deutsche Welle: Science and Technology. New scientific and technological developments.

Tuesdays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Quiz. See M 1215.
0230 Radio Australia: Music/Information. See S 0330.
0234 Deutsche Welle: Man and Environment. A
program on all topics relating to the environment in
industrial and developing countries.

Wednesdays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Development '91. Aid and development
issues for developing nations.



BBC's "The Litmus Test" host Michael Scott

0230 Radio Australia: Book Reading. See S 0030.
0234 Deutsche Welle: Insight. See T 1534.

Thursdays

0230 BBC: Sports International. Live play-by-play, interviews, features, and discussions from the sports world.

0230 Radio Australia: Music/Information. See S 0330.
0234 Deutsche Welle: Living in Germany. See M 0116.

Fridays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Drama. See H 1130.
0230 Radio Australia: Music/Information. See S 0330.
0234 Deutsche Welle: Spotlight on Sport. See W 1534.

Saturdays

0209 Deutsche Welle: Commentary. See S 0109.
0223 Deutsche Welle: Panorama. A review of the major news events of the week.
0230 BBC: People And Politics. The background to the British political scene.
0230 Radio Australia: This Australia. See S 0430.
0234 Deutsche Welle: Economic Notebook. See F 1534.

0300 UTC

[11:00 PM EDT/8:00 PM PDT]

FREQUENCIES

| | | | |
|-----------|--------------------------|---------|-------------------------|
| 0300-0400 | ABC Brisbane | 4920do | 9660do |
| 0300-0400 | ABC Perth | 9610do | |
| 0300-0330 | BBC London | 3255af | 5975na 6005af 6180eu |
| | | 6190af | 6195eu 7135me 9410eu |
| | | 9600af | 9670me 11760me 11955me |
| | | 12095eu | 15280as 15310as 15360pa |
| | | 15380as | 15420af 15590af 21715as |
| 0300-0330 | BBC London | 9915na | 6175na 7325na 15260sa |
| | | 11750sa | 6005sa |
| 0300-0400 | BBS Bahrain | 6010me | |
| 0300-0400 | CFCX Montreal | 6005do | |
| 0300-0400 | CFRX Toronto | 6070do | |
| 0300-0400 | CKZU Vancouver | 6160do | |
| 0300-0400 | CSM World Svc, Boston | 9455na | 9850na 13760na 17555na |
| | | 17865va | |
| 0300-0350 | Deutsche Welle | 6085na | 6145na 9545na 11810na |
| | | 11890na | 13610na 13770na 15205na |
| | | 15425na | |
| 0300-0400 | HCJB Quito | 9745na | 15155na 21545na |
| 0300-0400 | KTBN Salt Lake City | 7510am | |
| 0300-0400 | KVOH Los Angeles | 9785na | |
| 0300-0400 | R. for Peace Int'l | 7375na | 13630na 15030na 21465na |
| 0300-0330 | Radio Australia | 11880va | 11930va 15160va 15240va |
| | | 15320va | 17630va 17715va 17750va |
| | | 17795va | 21525va 21740va 21775va |
| 0300-0400 | Radio Beijing | 9690am | 11715am 11715am 15100am |
| | | 15110am | 17705am |
| 0300-0330 | Radio Cairo | 9475na | 9675na |
| 0300-0400 | Radio Cultura, Guatemala | 3300do | |
| 0300-0400 | Radio Havana Cuba | 11950am | 15140am |
| 0300-0330 | Radio Japan | 15325na | 17825na 21610na |
| 0300-0400 | Radio Moscow NAS | 4895na | 9530am 9600am 9685am |
| | | 9720va | 11675va 11730am 11780va |
| | | 11800va | 11850va 11980va 12035va |
| | | 12050va | 13605va 15140va 15280va |
| | | 15315va | 15320va 15410va 15415va |
| | | 15425va | 15450va 15480va 15540va |
| | | 15550va | 15580va 15590va 15595va |
| | | 16190va | 17560va 17600va 17620va |

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|------------------|---------------------------|---------|-------------------------|
| 0300-0400 | Radio New Zealand Int'l | 17710va | 17730va 17850va 17860va |
| | | 17890va | 21635va 21690va 21790va |
| 0300-0330 | Radio Prague | 5930na | 7345na 11685na |
| 0300-0400 | Radio Tanzania | 5985af | 9685af 11765af |
| 0300-0400 | Radio Thailand | 4830as | 9655as 11905as |
| 0300-0400 smtwh | RTM Malaysia | 7295do | |
| 0300-0400 | SBC Radio 1, Singapore | 5052do | 11940do |
| 0300-0400 | SLBS, Sierra Leone | 3316do | |
| 0300-0400 | Sri Lanka B'casting Corp. | 9720as | 15425as |
| 0300-0400 | TIFC Costa Rica | 5055ca | |
| 0300-0400 | Trans World Radio Boniare | 9535am | 11930am |
| 0300-0400 | V. of Free China, Taiwan | 5950na | 9680na |
| 0300-0315 | Vatican Radio | 7305na | 9615na 11625na |
| 0300-0330 | Voice of America | 6095va | 15160va 15195va 17810va |
| | | 17865va | |
| 0300-0400 | Voice of America | 6035af | 7405af 9575af 11835af |
| | | 15115af | 17715af 21600af |
| 0300-0400 | Voice of Kenya | 4935do | |
| 0300-0400 | WHRI Noblesville | 7435na | 9495sa |
| 0300-0400 | WRNO New Orleans | 7355am | |
| 0300-0400 | WWCR Nashville | 7520na | |
| 0300-0400 | WYFR Okeechobee | 6065na | 9 505na |
| 0300-0325 | Vatican Radio | 9635na | |
| 0300-0400 | BBC London | 3255af | 5975na 6005af 6180eu |
| | | 6190af | 6195eu 9410eu 9600af |
| | | 9915na | 11740af 11760me 11955me |
| | | 12095eu | 15280as 15310as 15420af |
| | | 17885af | 21715as |
| 0330-0400 | Radio Australia | 11880va | 11930va 15160va 15240va |
| | | 15320va | 15530va 17630va 17715va |
| | | 17795va | 21525va 21740va 21775va |
| 0330-0400 | Radio Netherlands | 6165am | 9590am |
| 0330-0400 twhfa | Radio Portugal | 9600sa | 9705na 9765na 11765sa |
| 0330-0400 | Radio Sweden | 9695na | 11705na |
| 0330-0400 | Radio Tirana | 9580na | 11825na |
| 0330-0400 | UAE Radio, Dubai | 11945na | 13675na 15400na 15435na |
| 0340-0350 twhf | R National de Venezuela | 9540om | |
| 0340-0350 mtwhfa | Voice of Greece | 9395am | 9420am 11645am |
| 0350-0400 | RAI, Rome | 11905as | 15330as 17795as |

SELECTED PROGRAMS

Sundays

- 0309 Deutsche Welle: Commentary. See S 0109.
 0310 Radio Australia: Back Page. Brendon Telfer looks at sports in the Asian/Pacific region.
 0315 BBC: Sports Roundup. News from the world of sports.
 0317 Deutsche Welle: Mailbag or Nickelodeon. See S 0117.
 0330 BBC: From Our Own Correspondent. Reporters comment on the background to the news.
 0330 Radio Australia: Music/Information. Overnight music, interspersed with news.
 0334 Deutsche Welle: German by Radio. See S 0134.
 0337 Radio Netherlands: Newslines. See S 0037.
 0350 BBC: Write On... Listener letters, opinions, and questions.
 0352 Radio Netherlands: Rembrandt Express. See S 0052.

Mondays

- 0309 Deutsche Welle: Commentary. See S 0109.
 0313 Radio Australia: Sports Report. See S 1313.
 0315 BBC: Sports Roundup. See S 0315.
 0316 Deutsche Welle: Living in Germany. See M 0116.
 0330 BBC: Anything Goes. See S 1430.
 0330 Radio Australia: Music/Information. See S 0330.
 0330 Radio Netherlands: Happy Station.
 0334 Deutsche Welle: Larry's Random Selection. See M 0134.

Tuesdays

- 0309 Deutsche Welle: European Journal. See M 0209.
 0313 Radio Australia: Sports Report. See S 1313.
 0315 BBC: Sports Roundup. See S 0315.
 0330 BBC: John Peel. Newly released albums and singles from the contemporary music scene.
 0330 Radio Australia: Music/Information. See S 0330.
 0334 Deutsche Welle: Transatlantic Diary. See T 0134.
 0337 Radio Netherlands: Newslines. See S 0037.
 0352 Radio Netherlands: The Research File.

Wednesdays

- 0309 Deutsche Welle: European Journal. See M 0209.
 0313 Radio Australia: Sports Report. See S 1313.
 0315 BBC: Sports Roundup. See S 0315.
 0330 BBC: Discovery. An in-depth look at scientific research.
 0330 Radio Australia: Music/Information. See S 0330.
 0334 Deutsche Welle: Transatlantic Diary. See T 0134.
 0337 Radio Netherlands: Newslines. See S 0037.
 0352 Radio Netherlands: Images.

Thursdays

- 0309 Deutsche Welle: European Journal. See M 0209.
 0313 Radio Australia: Sports Report. See S 1313.
 0315 BBC: Sports Roundup. See S 0315.
 0330 BBC: Assignment. A weekly examination of topical issues, from Batman to the Amazon.
 0330 Radio Australia: Music/Information. See S 0330.

- 0334 Deutsche Welle: Transatlantic Diary. See T 0134.
 0337 Radio Netherlands: Newslines. See S 0037.
 0352 Radio Netherlands: Feature.

Fridays

- 0309 Deutsche Welle: European Journal. See M 0209.
 0313 Radio Australia: Sports Report. See S 1313.
 0315 BBC: Sports Roundup. See S 0315.
 0330 BBC: Focus On Faith. Comment and discussion on major issues in various religions.
 0330 Radio Australia: Music/Information. See S 0330.
 0334 Deutsche Welle: Transatlantic Diary. See T 0134.
 0334 Deutsche Welle: Transatlantic Diary. See T 0134.
 0337 Radio Netherlands: Newslines. See S 0037.
 0352 Radio Netherlands: Media Network.

Saturdays

- 0309 Deutsche Welle: European Journal. See M 0209.
 0313 Radio Australia: Music/Information. See S 0330.
 0315 BBC: Sports Roundup. See S 0315.
 0330 BBC: The Vintage Chart Show. Paul Burnett with past Top 20 pop music hits.
 0330 Radio Australia: Women In Politics. Interviews with women politicians.
 0334 Deutsche Welle: Through German Eyes. See S 1513.
 0337 Radio Netherlands: Newslines. See S 0037.
 0352 Radio Netherlands: Dutch Rock.

0400 UTC

[12:00 AM EDT/9:00 PM PDT]

FREQUENCIES

| | | | | | | | | | |
|-----------|---------------------------|---------|-------------------------|------------------|---------------------------|---------|---------|---------|---------|
| 0400-0500 | ABC Brisbane | 4920do | 9660do | 0400-0425 | Radio Netherlands | 15455na | 15580na | 15595na | 16190na |
| 0400-0500 | ABC Perth | 9610do | | 0400-0500 smtwhf | Radio New Zealand Int'l | 6165am | 9590am | | |
| 0400-0430 | BBC London | 3255af | 3955eu 5975na 6180eu | 0400-0430 sm | Radio Norway | 11865na | | | |
| | | 6190af | 6195eu 7105af 7230eu | 0400-0430 | Radio Prague | 5930na | 7345na | 11685na | |
| | | 9410eu | 9600af 9610af 9915na | 0400-0500 | Radio Pyongyang | 15180as | 15230as | 17765as | |
| | | 11760me | 15070va 15280as 15310as | 0400-0430 | Radio Romania Int'l | 5990am | 6155am | 9510am | 9570am |
| | | 15420af | 15590eu 17885af 21715as | | | 11830am | 11940am | | |
| 0400-0430 | BBC London | 6005af | 6175am 11750va 11955me | 0400-0500 | Radio RSA | 5960af | 11860af | 11920af | |
| | | 12095va | | 0400-0500 | Radio Sofia, Bulgaria | 11720eu | 15160af | 17825af | |
| 0400-0500 | BBS Bahrain | 6010me | | 0400-0430 | Radio Tanzania | 5985af | 9685af | 11765af | |
| 0400-0500 | CFCX Montreal | 6005do | | 0400-0430 | Radio Thailand | 4830as | 9655as | 11905as | |
| 0400-0500 | CFRX Toronto | 6070do | | 0400-0410 | RAI, Rome | 11905as | 15330as | 17795as | |
| 0400-0500 | CKZU Vancouver | 6160do | | 0400-0425 | RAI, Rome | 5990me | 7275me | | |
| 0400-0415 | Croatian Radio, Zagreb | 7315am | | 0400-0500 smtwh | RTM Malaysia | 7295do | | | |
| 0400-0500 | CSM World Svc, Boston | 9455na | 9840af 13760na 17555as | 0400-0500 | SBC Radio 1, Singapore | 5052do | 11940do | | |
| | | 17780as | | 0400-0500 | SLBS, Sierra Leone | 3316do | | | |
| 0400-0450 | Deutsche Welle | 6145af | 7150af 7225af 9565af | 0400-0430 | Sri Lanka B'casting Corp. | 9720as | 15425as | | |
| | | 9765af | 11765af 11890af 13610af | 0400-0430 | Swiss Radio Int'l | 6135am | 9885am | 12035am | 13635me |
| | | 13770af | 15425af | 0400-0430 | Trans World Radio Bonaire | | 9535am | 11930am | |
| 0400-0500 | HCJB Quito | 9745na | 15155na | 0400-0430 | Voice of America | 5995eu | 6040eu | 6140eu | 7170eu |
| 0400-0500 | KTBN Salt Lake City | 7510am | | | | 7200eu | 11825eu | 15115eu | 15205eu |
| 0400-0500 | KVOH Los Angeles | 9785am | | 0400-0430 | Voice of America | 6035af | 9575af | 11835af | 15350af |
| 0400-0500 | R. for Peace Int'l | 7375na | 13630na 15030na 21465na | | | 17715af | 21600af | | |
| 0400-0500 | Radio 2, Zambia | 6165do | 7235do | 0400-0500 | Voice of America | 5995va | 6140va | 7170va | 7200va |
| 0400-0500 | Radio Australia | 11880va | 11930va 15160va 15240va | | | 7405va | 9715va | | |
| | | 15320va | 15365pa 15530va 17630va | 0400-0500 | Voice of Kenya | 4935do | | | |
| | | 17715va | 17795va 21525va 21740va | 0400-0500 | Voice of Turkey | 9445na | 17880as | | |
| | | 21775va | | 0400-0500 | WHRI Noblesville | 7435na | 9495sa | | |
| 0400-0500 | Radio Beijing | 11685am | 11840am | 0400-0500 smtwhf | WMLK Bethel | 9465eu | | | |
| 0400-0430 | Radio Canada Int'l | 15275me | | 0400-0500 | WRNO New Orleans | 7355am | | | |
| 0400-0500 | Radio Canada Int'l | 11925as | | 0400-0500 | WWCR Nashville | 7520na | | | |
| 0400-0425 | Radio Cultura, Guatemala | | 3300do | 0400-0500 | WYFR Okeechobee | 6065na | 9505na | | |
| 0400-0500 | Radio Cultura, Guatemala | | 3300do | 0430-0500 | BBC London | 3255af | 3955eu | 5975na | 6005af |
| 0400-0450 | Radio Havana Cuba | 5965am | 9505am 9750am 11760am | | | 6180eu | 6190af | 6195eu | 7230eu |
| | | 11820am | 11950am | | | 9410eu | 9600af | 11760me | 12095va |
| 0400-0500 | Radio Moscow | 9530na | 9600na 9685na 11675va | 0430-0500 mtwhf | NBC Windhoek, Namibia | 3270af | 3290af | | |
| | | 11780va | 11850va 11980va 11995va | 0430-0500 | Radio Nigeria | 3326do | 4990do | | |
| | | 12055va | 13775va 15140va 15210va | 0430-0500 s | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| | | 15280va | 15315va 15415va 15450va | 0430-0500 | TWR Swaziland | 5055af | 5965af | 9655af | 11750af |
| | | 15480va | 15525va 15535va 15540va | 0430-0500 | Voice of America | 3980eu | 5995eu | 6040eu | 6140eu |
| | | 15550va | 15590va 17560va 17600va | | | 7170eu | 7200eu | 11825eu | 15205eu |
| | | 17620va | 17635va 17640va 17710va | | | 6035af | 9575af | 15115af | 17715af |
| | | 17730va | 17850va 17860va 17890va | 0430-0500 | Voice of America | 21600af | | | |
| | | 21475va | 21565va 21625va 21630va | | | 17810me | | | |
| | | 21690va | 21725na 21790va 21845na | 0432-0500 | FEBA Seychelles | | | | |
| 0400-0500 | Radio Moscow NAS West Cst | | 9635na 12050na 13605na | 0450-0500 | Radio Havana Cuba | 9750am | 11760am | 11820am | |
| | | 13645na | 15180na 15410na 15425na | | | | | | |

SELECTED PROGRAMS

Sundays

- 0409 Deutsche Welle: Commentary. See S 0109.
 0413 Deutsche Welle: Sports Report. See S 0213.
 0419 Deutsche Welle: International Talking Point. A round-table discussion on major trends and events.
 0430 BBC: Pop Music. "B-Side Beat" looks at back sides — of famous records, that is (through 27th).
 0430 Radio Australia: This Australia. Documentaries about the land "down under."
 0434 Deutsche Welle: People and Places. Interviews, stories, and music beamed to Africa.
 0445 BBC: Talks. Try your hand with Colin Ford at "Mastering Photography" (through Nov. 10th).

Mondays

- 0409 Deutsche Welle: European Journal. See M 0209.
 0430 BBC: Off The Shelf. This month's serialized readings include George Eliot's "Silas Marner" (1st-18th); Carlo Levi's "Christ Stopped At Eboli" (through November 1st).
 0430 Radio Australia: Matters Of Faith. Dallas Adair examines the doctrines and beliefs of Asian/Pacific faiths.

- 0434 Deutsche Welle: Africa in the German Press. A look at what German papers and weeklies have to say about Africa.
 0445 BBC: Andy Kershaw's World Of Music. Exotic music from the world over.

Tuesdays

- 0409 Deutsche Welle: European Journal. See M 0209.
 0430 BBC: Off The Shelf. See M 0430.
 0430 Radio Australia: World Of Country Music. A look at country music from all around the world.
 0434 Deutsche Welle: Africa Report. Reports and background to the news from correspondents.
 0445 BBC: Europe's World. Life in Europe and its links with the rest of the world.

Wednesdays

- 0409 Deutsche Welle: European Journal. See M 0209.
 0430 BBC: Off The Shelf. See M 0430.
 0430 Radio Australia: Music.
 0434 Deutsche Welle: Africa Report. See T 0434.
 0445 BBC: Country Style. See W 0145.

Thursdays

- 0409 Deutsche Welle: European Journal. See M 0209.
 0430 BBC: Off The Shelf. See M 0430.
 0430 Radio Australia: Music Of Radio Australia. See S 1113.
 0434 Deutsche Welle: Africa Report. See T 0434.
 0445 BBC: From Our Own Correspondent. See S 0330.

Fridays

- 0409 Deutsche Welle: European Journal. See M 0209.
 0430 BBC: Off The Shelf. See M 0430.
 0430 Radio Australia: Communicator. See S 1430.
 0434 Deutsche Welle: Africa Report. See T 0434.
 0445 BBC: Folk In Britain. See T 0130.

Saturdays

- 0409 Deutsche Welle: Commentary. See S 0109.
 0423 Deutsche Welle: Panorama. See A 0223.
 0430 BBC: Jazz Now And Then. See A 0145.
 0430 Radio Australia: Business Horizons.
 0434 Deutsche Welle: Man and Environment. See T 0234.
 0445 BBC: Worldbrief. See F 2315.

0500 UTC

[1:00 AM EDT/10:00 PM DT]

FREQUENCIES

| | | | | | |
|-----------------|----------------------------|---------|---------|---------|---------|
| 0500-0600 | ABC Brisbane | 4920do | 9660do | | |
| 0500-0600 | ABC Perth | 9610do | | | |
| 0500-0530 | BBC London | 3255af | 3955eu | 6005af | 6180as |
| | | 6190af | 6195eu | 7230eu | 9410eu |
| | | 9600af | 9640na | 11760me | 12095va |
| | | 15070as | 15310as | 15400af | 15420af |
| | | 15590va | 17885af | 21470af | 21715as |
| 0500-0530 | BBC London | 5975na | 15280as | | |
| 0500-0600 | BBS Bahrain | 6010me | | | |
| 0500-0600 | CFCX Montreal | 6005do | | | |
| 0500-0600 | CFRX Toronto | 6070do | | | |
| 0500-0600 | CKZU Vancouver | 6160do | | | |
| 0500-0530 | CRTV Buea | 3970do | | | |
| 0500-0600 | CSM World Svc, Boston | 9455eu | 9840eu | 13760eu | 17555eu |
| | | 17780va | | | |
| 0500-0550 | Deutsche Welle | 5960na | 6120na | 9700na | 9670na |
| | | 11705na | 11890na | 13610na | 13790na |
| 0500-0600 | HCJB Quito | 9745na | 15155na | | |
| 0500-0600 | KTBN Salt Lake City | 7510am | | | |
| 0500-0600 | KVOH Los Angeles | 9785am | | | |
| 0500-0510 w | Malawi B'casting Corp. | 3381do | | | |
| 0500-0600 mtwhf | NBC Windhoek, Namibia | 3270af | 3290af | | |
| 0500-0600 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na |
| 0500-0600 | Radio 2, Zambia | 6165do | 7235do | | |
| 0500-0600 | Radio Australia | 11880va | 11930va | 15160va | 15240va |
| | | 15320va | 15365pa | 15530va | 17630va |
| | | 17715va | 17795va | 21525va | 21740va |
| | | 21775va | | | |
| 0500-0600 sa | Radio E. Africa, Eq Guinea | 9585af | | | |
| 0500-0600 | Radio Havana Cuba | 9750am | 11760am | 11820am | |
| 0500-0600 | Radio Japan | 17765na | 17810na | 17825na | 17890na |
| | | 21610na | | | |
| 0500-0510 | Radio Lesotho | 4800do | | | |
| 0500-0600 | Radio Moscow | 9530na | 9685na | 11675va | 11980va |
| | | 11995va | 13775va | 15140va | 15210va |
| | | 15280va | 15315va | 15320va | 15415va |
| | | 15450va | 15525va | 15535va | 15540va |
| | | 15545va | 15550va | 15590va | 17560va |
| | | 17600va | 17620va | 17625va | 17635va |
| | | 17640va | 17710va | 17730va | 17850va |
| | | 17860va | 17890va | 21475va | 21625va |
| | | 21630va | 21635va | 21645va | 21690va |
| | | 21725va | 21740va | 21790va | 21845va |
| 0500-0600 | Radio Moscow NAS West Cst | 9635na | 12050na | 13605na | |
| | | 13645na | 15180na | 15410na | 15425na |
| | | 15455na | 15595na | 16190na | |

| | | | | | |
|-----------------|---------------------------|---------|---------|---------|---------|
| 0500-0600 | Radio New Zealand Int'l | 17770pa | | | |
| 0500-0600 | Radio Nigeria | 3326do | 4990do | | |
| 0500-0600 | Radio Sofia, Bulgaria | 11720eu | 15160af | 17825af | |
| 0500-0600 | Radio Thailand | 4830as | 9655as | 11905as | |
| 0500-0600 s | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| 0500-0600 | RTM Malaysia | 7295do | | | |
| 0500-0600 | SBC Radio 1, Singapore | 5052do | 11940do | | |
| 0500-0600 | SLBS, Sierra Leone | 3316do | | | |
| 0500-0600 | Spanish Foreign Radio | 9630na | | | |
| 0500-0530 | TWR Swaziland | 5965af | 9655af | 11750af | |
| 0500-0530 | Vatican Radio | 6185eu | 6248eu | 17710af | 17730af |
| | | 21650af | | | |
| 0500-0530 | Voice of America | 3980eu | 5995eu | 6040eu | 6140eu |
| | | 7170eu | 7200eu | 11825eu | 15205eu |
| 0500-0600 | Voice of America | 5995va | 6060va | 6140va | 7170va |
| | | 7200va | 9670va | 9700va | 9715va |
| | | 11825va | 15205va | | |
| 0500-0600 | Voice of America | 6035af | 7405af | 9575af | 15115af |
| | | 17715af | | | |
| 0500-0600 | Voice of Kenya | 4935do | | | |
| 0500-0600 | Voice of Nigeria | 7255af | | | |
| 0500-0600 | WHRI Noblesville | 7435na | 9495sa | | |
| 0500-0600 | WINB Red Lion | 15145eu | | | |
| 0500-0600 | WRNO New Orleans | 7355am | | | |
| 0500-0600 | WWCR Nashville | 7520na | | | |
| 0500-0600 | WYFR Okeechobee | 5985na | 11580am | 15566eu | |
| 0510-0515 w | Radio Botswana | 5955af | 7255af | | |
| 0515-0600 mtwhf | Radio Canada Int'l | 6050eu | 6150eu | 7295eu | 9750eu |
| | | 11775eu | 17840eu | | |
| 0524-0600 f | Radio 2, Accra, Ghana | 3366do | | | |
| 0526-0600 | Radio 1, Accra, Ghana | 4915do | | | |
| 0530-0600 | BBC London | 3255af | 3955eu | 5975na | 6005af |
| | | 6180as | 6190af | 6195eu | 7230eu |
| | | 9410eu | 9600af | 9640na | 11760me |
| | | 12095va | 15070as | 15310as | 15400af |
| | | 15420af | 15590va | 17885af | 21470af |
| | | 15280as | 21715as | | |
| 0530-0600 | BBC London | 4850do | | | |
| 0530-0600 | Cameroon Radio-TV | | | | |
| 0530-0600 | Guizhou PBS Guiyang China | 3260do | 7275do | | |
| 0530-0600 | Radio Romania Int'l | 15340af | 15380af | 17720af | 17745af |
| | | 17790af | 21665af | | |
| 0530-0600 | TWR Swaziland | 5965af | 11750af | | |
| 0530-0600 | UAE Radio, Dubai | 15435as | 17830as | 21700as | |
| 0530-0600 | Voice of America | 3980eu | 5995eu | 6040eu | 6060eu |
| | | 6140eu | 7170eu | 7200eu | 11825eu |
| | | 15205eu | | | |
| 0545-0600 | Radio Buea, Cameroon | 3970do | | | |

SELECTED PROGRAMS

Sundays

0509 BBC: Twenty-Four Hours. Analysis.
 0509 Deutsche Welle: Commentary. See S 0109.
 0513 Radio Australia: Back Page. See S 0310.
 0517 Deutsche Welle: Mailbag/ Nickelodeon. See S 0117.
 0530 BBC: World Business Review.
 0530 Radio Australia: Interaction. Multicultural Australia.
 0534 Deutsche Welle: German by Radio. See S 0134.
 0540 BBC: Words Of Faith. Various faiths.
 0545 BBC: Letter From America. Alistair Cooke.

Mondays

0509 BBC: Twenty-Four Hours. See S 0509.
 0509 Deutsche Welle: Commentary. See S 0109.
 0513 Radio Australia: Music.
 0516 Deutsche Welle: Living in Germany. See M 0116.
 0530 BBC: Waveguide. how to hear the BBC better.
 0530 Radio Australia: Music/Information. See S 0330.
 0534 Deutsche Welle: Random Selection. See M 0134.
 0540 BBC: Words Of Faith. See S 0540.
 0545 BBC: Recording Of The Week. Classical releases.

Tuesdays

0509 BBC: Twenty-Four Hours. See S 0509.

0509 Deutsche Welle: European Journal. See M 0209.
 0513 Radio Australia: Music.
 0530 BBC: World Business Report. See M 2305.
 0530 Radio Australia: Points Of Law. See M 1530.
 0534 Deutsche Welle: Transatlantic Diary. See T 0134.
 0540 BBC: Words Of Faith. See S 0540.
 0545 BBC: The World Today.

Wednesdays

0509 BBC: Twenty-Four Hours. See S 0509.
 0509 Deutsche Welle: European Journal. See M 0209.
 0513 Radio Australia: Music.
 0530 BBC: World Business Report. See M 2305.
 0530 Radio Australia: Connections. See S 1530.
 0534 Deutsche Welle: Transatlantic Diary. See T 0134.
 0540 BBC: Words Of Faith. See S 0540.
 0545 BBC: The World Today.

Thursdays

0509 BBC: Twenty-Four Hours. See S 0509.
 0509 Deutsche Welle: European Journal. See M 0209.
 0513 Radio Australia: Music.
 0530 BBC: World Business Report. See M 2305.
 0530 Radio Australia: AgriNews. See T 1530.
 0534 Deutsche Welle: Transatlantic Diary. See T 0134.

0540 BBC: Words Of Faith. See S 0540.
 0545 BBC: The World Today.

Fridays

0509 BBC: Twenty-Four Hours. See S 0509.
 0509 Deutsche Welle: European Journal. See M 0209.
 0513 Radio Australia: Music.
 0530 BBC: World Business Report. See M 2305.
 0530 Radio Australia: Lane's Company. See T 1430.
 0540 BBC: Words Of Faith. See S 0540.
 0545 BBC: The World Today.

Saturdays

0509 BBC: Twenty-Four Hours. See S 0509.
 0509 Deutsche Welle: European Journal. See M 0209.
 0513 Radio Australia: Music.
 0530 BBC: World Business Report. See M 2305.
 0530 Radio Australia: Arts Roundabout. The arts in Australia, past and present.
 0534 Deutsche Welle: Through German Eyes. See S 1513.
 0540 BBC: Words Of Faith. See S 0540.
 0545 BBC: The World Today.

0600 UTC

[2:00 AM EDT/11:00 PM PDT]

FREQUENCIES

| | | | | | | | | | | | |
|----------------|---------------------------|---------|---------|---------|---------|------------------|-------------------------|---------|---------|---------|---------|
| 0600-0630 | BBC London | 3955eu | 6180eu | 6190af | 6195eu | 0600-0700 | Radio New Zealand Int'l | 15455na | 15595na | 16190na | 17605na |
| | | 7230eu | 9410eu | 9600af | 11760me | 0600-0700 | Radio Nigeria | 17770pa | | | |
| | | 11940af | 11955as | 12095eu | 15070va | 0600-0700 | Radio Pyongyang | 3326do | 4990do | | |
| | | 15310as | 15400af | 15420af | 15590va | 0600-0615 | Radio Sofia, Bulgaria | 15180as | 15230as | | |
| | | 17790as | 17830as | 17885af | 21470af | 0600-0700 sa | Radio Thailand | 11720eu | 15160af | 17825af | |
| 0600-0630 | BBC London | 5975na | 7150pa | 9640va | 15280as | 0600-0630 s | Radio Zambia Int'l | 4830as | 9655as | 11905as | |
| | | 15360pa | 21715as | | | 0600-0700 smtwha | RTM Malaysia | 9505af | 11880af | 17895af | |
| 0600-0700 | BBS Bahrain | 6010me | | | | 0600-0700 | SBC Radio 1, Singapore | 7295do | | | |
| 0600-0625 | Cameroon Radio-TV | 4850do | | | | 0600-0700 | SLBS, Sierra Leone | 5052do | 11940do | | |
| 0600-0700 | CFCX Montreal | 6005do | | | | 0600-0700 | TWR Swaziland | 3316do | | | |
| 0600-0700 | CFRX Toronto | 6070do | | | | 0600-0700 | V. of the Mediterranean | 5965af | 7200af | 11750af | |
| 0600-0700 | CKZU Vancouver | 6160do | | | | 0600-0700 | Vatican Radio | 9765eu | | | |
| 0600-0700 | CSM World Svc, Boston | 9455eu | 9840eu | 11705na | 17555eu | 0600-0620 | VOA Europe | 6185eu | 6248eu | | |
| | | 17780va | | | | 0600-0700 | | 3980eu | 5995eu | 6040eu | 6060eu |
| 0600-0650 | Deutsche Welle | 11765af | 13610af | 13790af | 15185af | | | 6095eu | 6140eu | 7170eu | 7325eu |
| | | 15205af | 17875af | | | | | 11805eu | | | |
| 0600-0700 tent | ELBC Monrovia, Liberia | 7275do | | | | 0600-0700 | Voice of America | 6035af | 6125af | 7405af | 9530af |
| 0600-0700 | HCJB Quito | 9745na | 15115na | | | | | 9575af | 15115af | 17715af | |
| 0600-0700 | King of Hope, Lebanon | 6280me | | | | 0600-0625 | Voice of Kenya | 4935do | | | |
| 0600-0700 | KTBN Salt Lake City | 7510na | | | | 0600-0700 | Voice of Malaysia | 6175as | 9750as | 15295as | |
| 0600-0700 | KVOH Los Angeles | 9785na | | | | 0600-0700 | WHRI Noblesville | 7435eu | 9495sa | | |
| 0600-0610 s | Malawi B'casting Corp. | 3381do | | | | 0600-0700 smtwhf | WMLK Bethel | 9465eu | | | |
| 0600-0630 | Nat'l Radio of Laos | 7112as | | | | 0600-0700 | WWCR Nashville | 7520na | | | |
| 0600-0700 sa | R. E. Africa, E. Guinea | 9585af | | | | 0600-0700 | WYFR Okeechobee | 5985na | 7355eu | 9660af | 13760na |
| 0600-0700 | R. For Peace Int'l | 7375na | 13630na | 15030na | 21566na | | | 15566eu | | | |
| 0600-0700 | Radio 1, Accra, Ghana | 4915do | | | | 0600-0630 s | ZLXA New Zealand | 3935do | | | |
| 0600-0700 f | Radio 2, Accra, Ghana | 3366do | | | | 0615-0630 s | Radio Bertoua, Cameroon | 4750do | | | |
| 0600-0700 | Radio 2, Zambia | 6165do | 7235do | | | 0625-0700 | Voice of Kenya | 4935do | | | |
| 0600-0700 | Radio Australia | 11880va | 11930va | 15160va | 15240va | 0630-0700 | BBC London | 5975na | 6180eu | 6190af | 6195eu |
| | | 15320va | 15365va | 17630va | 17750va | | | 7230eu | 9410eu | 9600af | 9640pa |
| | | 17795va | 21525va | 21740va | 21775va | | | 11760me | 11940af | 11955as | 12095eu |
| 0600-0645 s | Radio Douala, Cameroon | 4795do | | | | | | 15070va | 15310as | 15400af | 15420af |
| 0600-0700 | Radio Georgia, Tbilisi | 12070eu | | | | | | 15590va | 17830as | 17885af | 21470af |
| 0600-0700 | Radio Havana Cuba | 11760am | | | | 0630-0700 | BBC London | 7150pa | 15280as | 15360pa | 17790as |
| 0600-0700 | Radio Korea | 7275om | 11810na | 15170na | | | | 21715as | | | |
| 0600-0630 s | Radio Latvia, Riga | 5935eu | | | | 0630-0700 | Radio Finland | 6120eu | 9560eu | 11755eu | |
| 0600-0700 | Radio Moscow | 11675na | 11775va | 11980va | 13775va | 0630-0700 | Radio Polonia | 7270eu | 9675eu | | |
| | | 15140va | 15210va | 15280va | 15415va | 0630-0635 mtwhf | RTV Congolaise | 7105do | 9610do | | |
| | | 15425na | 15535va | 15545va | 15550va | 0630-0700 | Swiss Radio Int'l | 15430af | 17570af | 21770af | |
| | | 15590va | 17560va | 17600va | 17620va | 0630-0700 | Vatican Radio | 11710af | 17730af | 21650af | |
| | | 17625va | 17635va | 17640va | 17710va | 0630-0700 smtwhf | ZLXA New Zealand | 3935do | | | |
| | | 17730va | 17850va | 17860va | 21630va | 0635-0700 | TWR Monte Carlo | 9480eu | | | |
| | | 21645va | 21690va | 21725va | 21740va | 0640-0700 | TWR Monte Carlo | 9480na | | | |
| | | 21785va | 21790va | 21845va | | 0645-0700 | Ghana B'casting Corp. | 6130af | | | |
| 0600-0700 | Radio Moscow NAS West Cst | 9635na | 12050na | 13605na | | 0645-0700 | Radio Romania Int'l | 11940au | 15335au | 17720au | 17805au |
| | | 13645na | 15180na | 15410na | 15425na | | | 21665au | | | |

SELECTED PROGRAMS

Sundays

0609 Deutsche Welle: Commentary. See S 0109.
 0613 Deutsche Welle: Sports Report. See S 0213.
 0619 Deutsche Welle: International Talking Point. See S 0419.
 0630 BBC: Jazz For The Asking. Digby Fairweather plays listener requests.
 0630 Radio Australia: Fine Music Australia. See S 0230.
 0634 Deutsche Welle: People and Places. See S 0434.

Mondays

0609 Deutsche Welle: European Journal. See M 0209.
 0630 BBC: Feature. See S 1401.
 0630 Radio Australia: This Australia. See S 0430.
 0634 Deutsche Welle: Africa in the German Press. See M 0434.

Tuesdays

0609 Deutsche Welle: European Journal. See M 0209.
 0630 BBC: Rock/Pop Music. Tommy Vance brings the dressing to the always hard-rocking "Rock Salad" (through December 3rd). Rock on!
 0630 Radio Australia: Music Of Radio Australia.
 0634 Deutsche Welle: Africa Report. See T 0434.

Wednesdays

0609 Deutsche Welle: European Journal. See M 0209.
 0630 BBC: Meridian. Events in the world of the arts.
 0630 Radio Australia: Pacific Women. Conversations with Pacific women about their lives and concerns.
 0634 Deutsche Welle: Africa Report. See T 0434.

Thursdays

0609 Deutsche Welle: European Journal. See M 0209.

0630 BBC: Sports International. See H 0230.
 0630 Radio Australia: At Your Request. See S 0130.
 0634 Deutsche Welle: Africa Report. See T 0434.

Fridays

0609 Deutsche Welle: European Journal. See M 0209.
 0630 BBC: Meridian. See W 0630.
 0630 Radio Australia: Music Of Radio Australia.
 0634 Deutsche Welle: Africa Report. See T 0434.

Saturdays

0609 Deutsche Welle: Commentary. See S 0109.
 0623 Deutsche Welle: Panorama. See A 0223.
 0630 BBC: Meridian. See W 0630.
 0630 Radio Australia: Just Out. See M 0030.
 0634 Deutsche Welle: Man and Environment. See T 0234.

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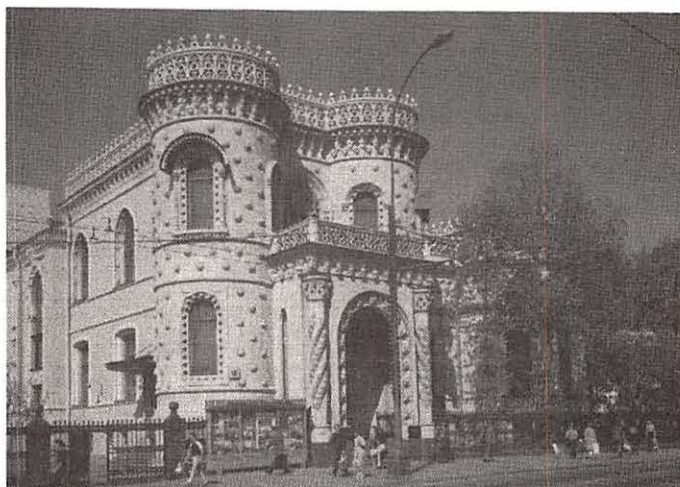
0700 UTC

3:00 AM EDT/12:00 AM PDT]

FREQUENCIES

| | | | | | | | | | | |
|-----------------|---------------------------|---------|---------|---------|---------|------------------|---------------------------|---------|---------|---------|
| 0700-0730 | BBC London | 1780as | 5975na | 7150pa | 9640va | 0700-0800 | Radio Moscow NAS West Cst | 9635na | 12050na | 13605na |
| | | 11955as | 15280as | 15360pa | 21715as | | | 13645na | 15180na | 15410na |
| 0700-0730 | BBC London | 6180eu | 6190af | 6195eu | 7230eu | | | 15595na | 16190na | 17605 |
| | | 7325af | 9410eu | 9760eu | 11760me | 0700-0730 | Radio New Zealand Int'l | 17770pa | | |
| | | 11940af | 12095eu | 15070eu | 15310as | 0700-0800 | Radio Nigeria | 3326do | 4990do | |
| | | 15400af | 15420af | 15590eu | 17640va | 0700-0800 | Radio Pyongyang | 15340as | 17765as | |
| | | 17790as | 17885af | 21470af | 21660af | 0700-0715 | Radio Romania Int'l | 11940au | 15335au | 17720au |
| 0700-0800 | BBS Bahrain | 6010me | | | | | | 21655au | | 17805au |
| 0700-0800 | CFCX Montreal | 6005do | | | | 0700-0800 sa | Radio Thailand | 4830as | 9655as | 11905as |
| 0700-0800 | CFRX Toronto | 6070do | | | | 0700-0800 smtwha | RTM Malaysia | 7295do | | |
| 0700-0800 | CKZU | 6160do | | | | 0700-0800 | SBC Radio 1, Singapore | 5052do | 11940do | |
| 0700-0800 | CSM World Svc, Boston | 9455eu | 9840eu | 13760pa | 17555as | 0700-0800 | SLBS, Sierra Leone | 3316do | | |
| | | 17780va | | | | 0700-0800 | TWR Monte Carlo | 9480na | | |
| 0700-0800 tent | ELBC Monrovia, Liberia | 7275do | | | | 0700-0800 | TWR Monte Carlo | 9480eu | | |
| 0700-0800 | Ghana B'casting Corp. | 6130af | | | | 0700-0800 | TWR Swaziland | 7200af | 11750af | |
| 0700-0800 | HCB Quito | 11835eu | 15270eu | 17790eu | | 0700-0800 | V. of Free China, Taiwan | 5950na | | |
| 0700-0800 mtwhf | Italian Radio Relay Svc | 9815eu | | | | 0700-0710 mtwhf | Vatican Radio | 6185eu | 6248eu | 9645eu |
| 0700-0800 | King of Hope, Lebanon | 6280me | | | | 0700-0800 | Voice of Kenya | 4935do | | 11740eu |
| 0700-0800 | KTBN Salt Lake City | 7510na | | | | 0700-0800 | Voice of Malaysia | 6175as | 9750as | 15295as |
| 0700-0800 | KVOH Los Angeles | 9785na | | | | 0700-0800 | WHRI Noblesville | 7435eu | 9495sa | |
| 0700-0710 w | Malawi B'casting Corp. | 3381do | 5995do | | | 0700-0800 | WWCR Nashville | 7520am | | |
| 0700-0800 sa | R. E. Africa, Eq. Guinea | 9585af | | | | 0700-0800 | WYFR Okeechobee | 7355na | 13695na | 13760eu |
| 0700-0800 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na | 0700-0800 smtwhf | ZXLA New Zealand | 3935do | 15566eu | |
| 0700-0800 | Radio 1, Accra, Ghana | 4915do | | | | 0705-0800 a | Radio Douala, Cameroon | 4795do | | |
| 0700-0800 f | Radio 2, Accra, Ghana | 3366do | | | | 0730-0800 | AWR Foll, Italy | 7230eu | | |
| 0700-0800 | Radio 2, Zambia | 6165do | 7235do | | | 0730-0800 | BBC London | 6180eu | 6190af | 7325eu |
| 0700-0800 | Radio Australia | 11880va | 11930va | 15240va | 15320va | | | 9600af | 9760eu | 11760me |
| | | 17630va | 21525va | 21740va | 21775va | | | 11940af | 12095va | 15070eu |
| 0700-0710 | Radio Bafoussam, Cameroon | 4000do | | | | | | 15400af | 15420af | 15590af |
| 0700-0800 | Radio Havana Cuba | 11835am | | | | | | 17830as | 17885af | 21470af |
| 0700-0800 | Radio Japan | 15325me | 17765eu | 17810as | 17890as | | | 21660af | | |
| | | 21525as | | | | 0730-0800 | BBC London | 7150pa | 9640va | 11955as |
| 0700-0800 | Radio Moscow | 17560va | 17570va | 17600va | | | | 15310as | 15360pa | 17790as |
| | | 17620va | 17625va | 17635va | 17710va | 0730-0800 | BRT Brussels | 6035eu | 11695eu | 13675eu |
| | | 17730va | 17765va | 17835va | 17850va | 0730-0745 mtwhf | Icelandic National Radio | 3295om | 6100om | 9265om |
| | | 17860va | 17890va | 21475va | 21515va | 0730-0800 | R. New Zealand Int'l | 9700pa | | |
| | | 21625va | 21630va | 21645va | 21655va | 0730-0800 | Radio Austria | 6155eu | 13730eu | 15410me |
| 0700-0800 | Radio Moscow | 7315va | 11730va | 11775va | 11980va | 0730-0800 | Radio Netherlands | 9630au | 9715au | 21490me |
| | | 11995va | 12010va | 13775va | 15140va | 0730-0800 | Radio New Zealand | 9700as | | |
| | | 15205va | 15280va | 15320va | 15340va | 0730-0800 | Radio Prague | 17840pa | 21705as | |
| | | 15350va | 15375va | 15415va | 15450va | 0730-0800 | Swiss Radio Int'l | 3985eu | 6165eu | 9535eu |
| | | 15535va | 15540va | 15545va | 15550va | 0740-0800 | Radio Prague Inter-Progra | 6055eu | 7345eu | 9505eu |
| | | 21690va | 21725va | 21740va | 21785va | | | | | |
| | | 21790va | 21845va | | | | | | | |

Program monitor, John Carson, Oklahoma, shares this QSL from Radio Moscow highlighting the People's Friendship House.



0800 UTC

[4:00 AM EDT/1:00 AM PDT]

FREQUENCIES

| | | | | | | | |
|------------------|---------------------------|---------|---------|---------|---------|--|--|
| 0800-0830 | BBC London | 6180eu | 6190af | 7325eu | 9410eu | | |
| | | 9600af | 9760eu | 11760me | 11860af | | |
| | | 12095eu | 15070eu | 15310as | 15360pa | | |
| | | 15400af | 15420af | 15590me | 17790as | | |
| | | 17830as | 17885af | 21470af | 21660af | | |
| 0800-0830 | BBC London | 7150pa | 9640pa | 9660eu | 11950af | | |
| | | 11955as | 15105af | 15280as | 17640va | | |
| | | 21715as | | | | | |
| 0800-0900 | BBS Bahrain | 6010me | | | | | |
| 0800-0900 | CFCX Montreal | 6005do | | | | | |
| 0800-0900 | CFRX Toronto | 6070do | | | | | |
| 0800-0900 | CSM World Svc, Boston | 9455va | 11705va | 13760va | 15610va | | |
| | | 17555va | | | | | |
| 0800-0900 | HCJB Quito | 6205pa | 9610pa | 9745pa | 11835pa | | |
| | | 11925pa | | | | | |
| 0800-0900 mtwhf | Italian Radio Relay Svc | 9815eu | | | | | |
| 0800-0900 | King of Hope, Lebanon | 6280me | | | | | |
| 0800-0900 | KNLS Anchor Point | 11715as | | | | | |
| 0800-0900 | KTWR Guam | 15200as | | | | | |
| 0800-0810 w | Malawi B'casting Corp. | 3381do | | | | | |
| 0800-0900 sa | R. E. Africa, Eq. Guinea | 9585af | | | | | |
| 0800-0900 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na | | |
| 0800-0900 | Radio 1, Accra, Ghana | 4915do | | | | | |
| 0800-0900 f | Radio 2, Accra, Ghana | 3366do | | | | | |
| 0800-0900 | Radio 2, Zambia | 6165do | 7235do | | | | |
| 0800-0900 | Radio Australia | 9710va | 15160va | 15240va | 15365va | | |
| | | 17630va | 17750va | 21775va | 25750va | | |
| 0800-0810 | Radio Bafoussam, Cameroon | 4000do | | | | | |
| 0800-0900 a | Radio Douala, Cameroon | 4795do | | | | | |
| 0800-0900 | Radio Finland | 17800pa | 21550pa | | | | |
| 0800-0900 | Radio Korea | 7550eu | 13670eu | | | | |
| 0800-0900 | Radio Moscow | 7315va | 11980va | 12010va | 12030va | | |
| | | 15140va | 15155va | 15205va | 15280va | | |
| | | 15375va | 15450va | 15540va | 15545va | | |
| | | 15550va | 15580va | 15590va | 17550va | | |
| | | 17560va | 17570va | 17600va | 17615va | | |
| | | 17560va | 17570va | 17600va | 17615va | | |
| | | 1765va | 17680va | 17690va | 17710va | | |
| | | 17730va | 17755va | 17810va | 17815va | | |
| | | 17830va | 17850va | 21625va | 21630va | | |
| | | 21645va | 21655va | 21715va | 21725va | | |
| | | 21740va | 21785va | 21790va | 21845va | | |
| 0800-0825 | Radio Netherlands | 9630au | 9715au | | | | |
| 0800-0900 | Radio New Zealand Int'l | 9700pa | | | | | |
| 0800-0900 | Radio Nigeria | 3326do | 4990do | | | | |
| 0800-0900 | Radio Pyongyang | 15180as | 15230as | | | | |
| 0800-0900 smtwha | RTM Malaysia | 7295do | | | | | |
| 0800-0900 | SBC Radio 1, Singapore | 5052do | 11940do | | | | |
| 0800-0900 | SLBS, Sierra Leone | 3316do | 5980do | | | | |
| 0800-0850 | TWR Monte Carlo | 9480eu | | | | | |
| 0800-0825 | TWR Swaziland | 7200af | 11750af | | | | |
| 0800-0830 | V. of Islam, Bangladesh | 15195as | 17815as | | | | |
| 0800-0900 | VOA Europe | 11740eu | 15160eu | 15195eu | 21570eu | | |
| | | 21615eu | | | | | |
| 0800-0830 | Voice of America | 11735va | 15160va | 15195va | 21570va | | |
| | | 21700va | | | | | |
| 0800-0900 | Voice of Indonesia | 11752as | 11785as | | | | |
| 0800-0900 | Voice of Kenya | 4935do | | | | | |
| 0800-0825 | Voice of Malaysia | 6175as | 9750as | 15295as | | | |
| 0800-0900 | Voice of Nigeria | 7255af | | | | | |
| 0800-0900 | WHRI Noblesville | 7435eu | 9495sa | | | | |
| 0800-0900 | WWCR Nashville | 7520am | | | | | |
| 0800-0900 smtwhf | ZXLA New Zealand | 3935do | | | | | |
| 0827-0900 | KTWR Guam | 11805as | | | | | |
| 0830-0900 | BBC London | 6180eu | 6190eu | 7325eu | 9410eu | | |
| | | 9660eu | 9760eu | 11860af | 11940af | | |
| | | 11955as | 12095eu | 15070va | 15280as | | |

| | | | | | |
|-----------------|---------------------------|---------|---------|---------|---------|
| 0830-0900 | BBC London | 15360pa | 15400af | 15420af | 15590me |
| | | 17640va | 17830as | 21660af | 21715as |
| 0830-0900 | Radio Netherlands | 17885af | | | |
| | | 9630pa | | | |
| 0830-0900 | Swiss Radio Int'l | 9560as | 13685as | 17670as | 21695as |
| 0830-0900 | Voice of America | 11735va | 15160va | 15195va | 21570va |
| | | 21700va | | | |
| 0835-0850 mtwhf | TWR Swaziland | 7200af | 11750af | | |
| 0840-0900 | Radio Prague Inter-Progra | 6055eu | 7345eu | 9505eu | |
| 0840-0850 mtwhf | Voice of Greece | 15650au | 17525au | | |



Forget Something?

If you're the sort of person who would lose his head if it weren't attached, maybe you'd better renew that subscription **now!**...

Use the handy order form on page 75.

0900 UTC

[5:00 AM EDT/2:00 AM PDT]

FREQUENCIES

| | | | | | | | | | |
|-----------------|--------------------------|---------|---------|---------|---------|-----------------|---------------------------|---------|-------------------------|
| 0900-0930 | BBC London | 1170as | 5975eu | 6045eu | 6180u | 17625va | 17635va | 17680va | 17690va |
| | | 6190af | 6195as | 7325eu | 9410eu | 17755va | 17760va | 17765va | 17775va |
| | | 9660eu | 9740as | 9750eu | 9760eu | 17810va | 17815va | 17850va | 17875va |
| | | 11760me | 11860af | 11940af | 12095eu | 17895va | 17940va | 17960va | 21625va |
| | | 15070va | 15400af | 17640va | 21660af | 21630va | 21645va | 21655va | 21690va |
| | | 15190sa | 15280as | 15310as | 15360as | 21715va | 21725va | 21740va | 21785va |
| | | 15420af | 15575me | 15590me | 17705eu | 21790va | 21800va | 21845va | |
| | | 17790af | 17830as | 17885af | 21470af | | | | |
| | | 21660af | 21715as | | | | | | |
| 0900-1000 | BBS Bahrain | 6010me | | | | 0900-0925 | Radio Netherlands | 9630pa | |
| 0900-1000 s | BBS, Bhutan | 6035do | | | | 0900-1000 | Radio New Zealand | 9700pa | |
| 0900-1000 | CFCX Montreal | 6005do | | | | 0900-1000 | Radio Nigeria | 3326do | 4990do |
| 0900-1000 | CFRX Toronto | 6070do | | | | 0900-1000 | Radio Tanzania | 5985af | 9685af 11765af |
| 0900-1000 | CKZU Vancouver | 6160do | | | | 0900-0915 | Radio Voice of Lebanon | 6550me | |
| 0900-1000 | CSM World Svc, Boston | 9455va | 11705va | 13760va | 15610va | 0900-1000 | RTM Malaysia | 7295do | |
| | | 17555va | | | | 0900-1000 | SBC Radio 1, Singapore | 5052do | 11940do |
| 0900-0950 | Deutsche Welle | 6160as | 11915as | 17780as | 17820as | 0900-1000 | SLBS, Sierra Leone | 3316do | |
| | | 21465as | 21650as | 21680as | | 0900-0935 s | TWR Monte Carlo | 9480eu | |
| 0900-0950 | Deutsche Welle | 9565af | 15410af | 21600af | | 0900-1000 | VOA Europe | 11740eu | 15160eu 15195eu 21570eu |
| 0900-1000 | FEBC Manila | 9800as | 11665as | | | | | 21615eu | |
| 0900-1000 | HCJB Quito | 9745va | | | | 0900-1000 | Voice of Kenya | 4935do | |
| 0900-1000 mtwhf | Italian Radio Relay Svc | 9815eu | | | | 0900-1000 | Voice of Nigeria | 7255af | |
| 0900-1000 | King of Hope, Lebanon | 6280me | | | | 0900-1000 | WWCR Nashville | 7520am | |
| 0900-0927 | KTWR Guam | 15200as | | | | 0900-0930 mtwhf | ZLXA New Zealand | 3935do | |
| 0900-1000 | KTWR Guam | 11805as | | | | 0905-1000 | Cameroon Radio-TV | 4850do | |
| 0900-0910 | Malawi B'casting Corp. | 5995do | | | | 0905-1000 mtwhf | R. 2 Schools Prg., Ghana | 7295do | |
| 0900-1000 sa | R. E. Africa, Eq. Guinea | 9585af | | | | 0905-1000 sa | Radio 1, Accra, Ghana | 4915do | |
| 0900-0930 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na | 0905-1000 sa | Radio 2, Accra, Ghana | 3366do | |
| 0900-0905 | Radio 1, Accra, Ghana | 4915do | | | | 0910-0935 as | TWR Monte Carlo | 11655na | |
| 0900-0905 f | Radio 2, Accra, Ghana | 3366do | | | | 0910-0940 smwha | Ulaanbaatar R., Mongolia | 11850pa | 12015pa |
| 0900-1000 | Radio 2, Zambia | 6165do | 7235do | | | 0915-0939 | Al-Quds Radio (cland.) | 5900om | 5990om |
| 0900-1000 | Radio Australia | 9580va | 9710va | 9760va | 15160va | 0920-1000 | BFBS British Forces | 15245me | 17830me 21745me |
| | | 15240va | 15320va | 15365va | 25750va | 0930-1000 | BBC London | 5975eu | 6045eu 6180eu 6190af |
| 0900-1000 | Radio Beijing | 11755au | 15440au | 17710au | | | | 6195as | 9410eu 9660eu 9740as |
| 0900-1000 | Radio Japan | 15270pa | 17890pa | | | | | 9750eu | 9760eu 11750as 11760me |
| 0900-1000 | Radio Moscow | 7315va | 11850va | 12010va | 12030va | | | 11940af | 12095eu 15070va 15310as |
| | | 15140va | 15155va | 15205va | 15320va | | | 15400af | 15420af 15575me 15590me |
| | | 15375va | 15405va | 15415va | 15450va | 0930-1000 | BBC London | 15190sa | 17640va 17705eu |
| | | 15500va | 15580va | 15590va | 17550va | 0930-1000 | Afghanistan | 4940as | 9635as 17655as 21600as |
| | | 17560va | 17570va | 17600va | 17615va | 0930-0940 | Radio Netherland | 11895pa | |
| | | | | | | | RTV Togo | 7265do | |
| | | | | | | 0940-1000 | Radio Prague Inter-Progra | 6055eu | 7345eu 9505eu |

*The Deutsche Welle
camera team
in action.*



1000UTC

[6:00 AM EDT/3:00 AM PDT]

FREQUENCIES

| | | | | | |
|-----------------|--------------------------|---------|---------|---------|---------|
| 1000-1100 | All India Radio, Delhi | 15050as | 15335as | 17387as | 17865as |
| | | 21735as | | | |
| 1000-1030 | BBC London | 5975eu | 6045eu | 6180eu | 6190af |
| | | 6195as | 9410eu | 9660eu | 9740as |
| | | 9750eu | 9760eu | 11750as | 11760me |
| | | 11940af | 12095eu | 15070va | 15190sa |
| | | 15310as | 15400af | 15420af | 15575me |
| | | 17640eu | 17705eu | 17790af | 17885af |
| | | 21470af | 21660af | 21715as | |
| 1000-1100 | BBS Bahrain | 6010me | | | |
| 1000-1100 | Cameroon Radio-TV | 4850do | | | |
| 1000-1100 | CFCX Montreal | 6005do | | | |
| 1000-1100 | CFRX Toronto | 6070do | | | |
| 1000-1100 | CKZU Vancouver | 6160do | | | |
| 1000-1100 | FEBC Manila | 9800as | 11665as | | |
| 1000-1100 | HCJB Quito | 9745pa | 11925pa | | |
| 1000-1100 mtwhf | Italian Radio Relay Svc | 9815eu | | | |
| 1000-1100 | KSDA Guam | 13720as | | | |
| 1000-1100 mtwhf | R. 2 Schools Prg., Ghana | 7295do | | | |
| 1000-1100 sa | R. E. Africa, Eq. Guinea | 9585af | | | |
| 1000-1100 sa | Radio 1, Accra, Ghana | 4915do | | | |
| 1000-1100 sa | Radio 2, Accra, Ghana | 3366do | | | |
| 1000-1100 | Radio 2, Zambia | 6165do | 7235do | | |
| 1000-1030 | Radio Afghanistan | 4940as | 9635as | 17655as | 21600as |
| 1000-1100 | Radio Australia | 7140va | 9580va | 11800va | 13605va |
| | | 15160va | 15170va | 15365va | 25750va |
| 1000-1100 | Radio Beijing | 11755au | 15440au | 17710au | |
| 1000-1100 | Radio Moscow | 11840na | 11850va | 12010va | 12030va |
| | | 15140va | 15155va | 15320va | 15375va |
| | | 15405va | 15415va | 15450va | 15500va |
| | | 15535va | 15540va | 15550va | 15560va |
| | | 15580va | 15590va | 17560va | 17600va |
| | | 17615va | 17625va | 17635va | 17655va |
| | | 17680va | 17690va | 17755va | 17760va |
| | | 17765va | 17775va | 17810va | 17815va |
| | | 17850va | 17890va | 21630va | 21645va |
| | | 21655va | 21690va | 21715va | 21725va |
| | | 21725va | 21740va | 21785va | 21790va |
| | | 21800va | 21845va | | |

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|------------------|---------------------------|---------|---------|---------|---------|
| 1000-1025 | Radio Netherland | 11895pa | | | |
| 1000-1100 | Radio New Zealand | 9700pa | | | |
| 1000-1100 | Radio Nigeria | 4990do | 7285do | | |
| 1000-1100 | Radio RSA, Johannesburg | 17835af | | | |
| 1000-1030 | Radio Tanzania | 5985af | 9685af | 11765af | |
| 1000-1100 mtwh | RTM Malaysia | 7295do | | | |
| 1000-1100 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | |
| 1000-1100 | SLBS, Sierra Leone | 3316do | | | |
| 1000-1100 | TWR Costa Rica | 9725ca | | | |
| 1000-1100 | Voice of America | 5985as | 11720as | 11740va | 15160va |
| | | 15195va | 15425as | 21570va | 21615va |
| 1000-1100 | Voice of America | 9590ca | 11915ca | 15120ca | |
| 1000-1100 | Voice of Kenya | 4935do | | | |
| 1000-1100 | Voice of Nigeria | 7255af | | | |
| 1000-1030 | Voice of Vietnam | 9755as | 12020as | | |
| 1000-1100 | WWCR Nashville | 7520na | | | |
| 1000-1100 | WYFR Okeechobee | 1000 | 5985am | 7510am | |
| 1000-1100 | Zimbabwe BC Corp. | 3396do | 7283do | | |
| 1030-1100 | AWR Foli, Italy | 7230eu | | | |
| 1030-1100 | BBC London | 5975eu | 6045eu | 6180eu | 6190af |
| | | 6195as | 9410eu | 9660eu | 9740as |
| | | 9750eu | 9760eu | 11750as | 11760me |
| | | 11940af | 12095eu | 15070va | 15190sa |
| | | 15310as | 15400af | 15420af | 15575me |
| 1030-1100 | BBC London | 17640va | 17705eu | 17790af | 17885af |
| | | 21470af | 21660af | | |
| 1030-1040 mtwhf | Malawi B'casting Corp. | 5995do | | | |
| 1030-1100 | Radio Austria | 15450as | 21490as | | |
| 1030-1100 | Radio Korea | 11715na | | | |
| 1030-1100 sa | Radio Tanzania | 5985af | 9685af | 11765af | |
| 1030-1100 | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| 1030-1100 | Sri Lanka B'casting Corp. | 11835as | 15120as | 17850as | |
| 1030-1100 | UAE Radio, Dubai | 13675eu | 15320eu | 15435as | 21605as |
| 1030-1100 | VOIRI, Teheran, Iran | 9575va | 9705va | 11715va | 11790va |
| | | 11940va | | | |
| 1040-1100 | Radio Prague Inter-Progra | 6055eu | 7345eu | 9505eu | |
| 1040-1050 mtwhfa | Voice of Greece | 15650as | 17535as | | |

Radio New Zealand International



LAKE WANAKA



Scenic QSLs from Radio New Zealand International and Radio Australia, submitted by R. Rogers.



1100 UTC

[7:00 AM EDT/4:00 AM PDT]

FREQUENCIES

| | | | | | |
|-----------------|--------------------------|---------|---------|---------|---------|
| 1100-1200 | AWR Costa Rica | 9725ca | | | |
| 1100-1130 | BBC London | 5965na | 6045eu | 6180eu | 6190af |
| | | 6195eu | 9410eu | 9515na | 9660eu |
| | | 9740as | 9750eu | 9760eu | 11750as |
| | | 11760me | 11940af | 12095eu | 15070va |
| | | 15310as | 15400af | 15420af | 15575me |
| | | 15220na | 17640va | 17705eu | 17790af |
| | | 17885af | 21470af | 21660af | |
| 1100-1200 | BBS Bahrain | 6010me | | | |
| 1100-1125 mtwhf | BRT, Brussels | 6035eu | 13675eu | 21810af | |
| 1100-1200 | CFCX Montreal | 6005do | | | |
| 1100-1200 | CFRX Toronto | 6070do | | | |
| 1100-1200 | CSM World Svc, Boston | 9455eu | 9495eu | 9820pa | 13625pa |
| | | 15610pa | 17555pa | | |
| 1100-1150 | Deutsche Welle | 11890af | 15410af | 17765af | 17800af |
| | | 17860af | 21600af | | |
| 1100-1200 | HCJB Quito, Ecuador | 11925am | 15115am | 17890am | 21455am |
| 1100-1200 mtwhf | Italian Radio Relay Svc | 9815eu | | | |
| 1100-1200 | KTBN Salt Lake City | 7510na | | | |
| 1100-1110 sa | Malawi B'casting Corp. | 5995do | | | |
| 1100-1110 mtwhf | R. 2 Schools Prg., Ghana | 7295do | | | |
| 1100-1200 | Radio 1, Accra, Ghana | 4915do | | | |
| 1100-1200 sa | Radio 2, Accra, Ghana | 3366do | | | |
| 1100-1200 | Radio Australia | 6080va | 7240va | 9580va | 9710va |
| | | 11800va | 11930va | 15170va | 15365va |
| | | 21720va | | | |
| 1100-1200 | Radio Japan | 6120na | 11815sa | 11840na | 12070pa |
| 1100-1200 | Radio Jordan | 13655na | | | |
| 1100-1200 | Radio Moscow | 9600na | 11850va | 15140va | 15155va |
| | | 15320va | 15375va | 15405va | 15450va |
| | | 15480va | 15500va | 15535va | 15540va |
| | | 15550va | 15560va | 15590va | 17560va |
| | | 17570va | 17600va | 17615va | 17680va |
| | | 17755va | 17760va | 17765va | 17775va |
| | | 17805va | 17810va | 17815va | 17830va |
| | | 17890va | 21630va | 21645va | 21655va |

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|-----------------|---------------------------|---------|---------|---------|---------|
| | | 21690va | 21715va | 21740va | 21785va |
| | | 21790va | 21800va | 21845va | |
| 1100-1130 | Radio Mozambique | 9525af | 11818af | 11835af | |
| 1100-1120 | Radio Pakistan | 17565eu | 21520eu | | |
| 1100-1200 | Radio Pyongyang, N Korea | | 9977am | | |
| 1100-1200 | Radio RSA, Johannesburg | | 9555af | 11860af | 11900af |
| 1100-1130 | Sri Lanka B'casting Corp. | 11835as | 15120as | 17850as | |
| 1100-1130 | Swiss Radio Int'l | 13635as | 15570as | 17830as | 21770as |
| 1100-1200 | TWR Bonaire | 11815am | 15345am | | |
| 1100-1130 | Voice of Vietnam | 7416as | 9732as | | |
| 1100-1125 | VOIRI, Teheran, Iran | 9575va | 9705va | 11715va | 11790va |
| | | 11940va | | | |
| 1100-1200 | WHRI Noblesville, Indiana | | 9465na | | |
| 1100-1200 | WWCR Nashville | 12160na | | | |
| 1100-1200 | WYFR Okeechobee | 5950na | 7355na | 11580ca | |
| 1115-1145 | Radio Nepal, Katmandu | 5005as | 7165as | | |
| 1120-1140 | Hunan PBS Changs ha China | | 4892va | | |
| 1125-1130 sa | Radio Botswana, Gaborone | | 5955af | 7255af | |
| 1130-1200 | BBC London | 5965na | 6045eu | 6180eu | 6190af |
| | | 6195eu | 9410eu | 9515na | 9660eu |
| | | 9740as | 9750eu | 9760eu | 11750as |
| | | 11760me | 11940af | 12095eu | 15070va |
| | | 15220na | 15310as | 15420af | 15575me |
| | | 17640va | 17705eu | 17790af | 17885af |
| | | 21470af | | | |
| 1130-1200 | Radio Austria Int'l | 6155eu | 13730eu | 15430as | 21490na |
| 1130-1200 | Radio Beijing | 8425as | 11445as | 12450as | 15135as |
| 1130-1200 mtwhf | Radio Finland, Helsinki | 15400na | 21550na | | |
| 1130-1140 | Radio Lesotho, Masseru | 4800do | | | |
| 1130-1200 | Radio Netherlands | 5955eu | 9715eu | 17575eu | 21480eu |
| | | 21520eu | | | |
| 1130-1200 | Radio Sweden | 11960as | 17740as | 21570pa | |
| 1130-1200 | Radio Thailand, Bangkok | 4830as | 9655as | 11905as | |
| 1130-1145 | RTM Malaysia | 5950do | 7160do | | |
| 1130-1145 | Vatican Radio | 6248eu | 9645eu | 11740eu | 15210eu |
| 1130-1200 | Voice of America | 9590am | 11735me | 11915am | 15160me |
| | | 15225me | 21550me | 21705me | |
| 1145-1200 | Radiodiffusion du Burundi | | 6140af | | |

SELECTED PROGRAMS

Sundays

1109 Deutsche Welle: Arts on the Air.
1113 Radio Australia: Music Of Radio Australia.
1115 Radio Korea: Echoes of Korean Music.
1130 BBC: The Ken Bruce Show. See S 0030.
1130 Radio Australia: One World. Michael Wagner.
1130 Radio Netherlands: Happy Station.
1134 Deutsche Welle: German by Radio. See S 0134.
1135 Radio Korea: Shortwave Feedback.

Mondays

1109 Deutsche Welle: Newsiine Cologne. A current
affairs program with worldwide reports.

1113 Radio Australia: Music.

1115 Radio Korea: News Commentary. See S 0015.

1120 Radio Korea: Seoul Calling. Music and features.

1130 BBC: Composer Of The Month. See M 0230.

1130 Radio Australia: Land And Culture.

1134 Deutsche Welle: Hello Africa. Musical requests.

1137 Radio Netherlands: Newsiine. See S 0037.

1140 Radio Korea: Let's Learn Korean!

1145 Radio Korea: Sports Roundup. Sports in Korea.

1152 Radio Netherlands: The Research File. The latest
developments in science and technology.

Tuesdays

1109 Deutsche Welle: Newslane Cologne.
1113 Radio Australia: Music.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Seoul Calling.

1130 BBC: Megamix. Topics for young people.
1130 Radio Australia: Business Horizons.
1134 Deutsche Welle: Hello Africa.
1137 Radio Netherlands: Newslines. See S 0037.
1140 Radio Korea: Let's Learn Korean!
1145 Radio Korea: Korean Cultural Variety.
1152 Radio Netherlands: Images. An arts magazine.

Wednesdays

1109 Deutsche Welle: Newslane Cologne.
1113 Radio Australia: Music.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Seoul Calling.
1130 BBC: Meridian. See W 0630.
1130 Radio Australia: Science File.
1134 Deutsche Welle: Hello Africa.
1137 Radio Netherlands: Newslane. See S 0037.
1140 Radio Korea: Let's Learn Korean!
1145 Radio Korea: Pulse of Korea.
1152 Radio Netherlands: Feature. Topical programming.

Thursdays

1109 Deutsche Welle: Newslane Cologne.
1113 Radio Australia: Music.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Seoul Calling.
1130 BBC: Drama. "Scenes From A Marriage", Ingmar Bergman classic (through November 7th).
1130 Radio Australia: AgriNews. See T 1530.
1134 Deutsche Welle: Hello Africa.

1137 Radio Netherlands: Newsline. See S 0037.
1140 Radio Korea: Let's Learn Korean!
1145 Radio Korea: Focus This Week.
1152 Radio Netherlands: Media Network. Jonathan Marks surveys communications developments.

Fridays

1109 Deutsche Welle: Newslane Cologne.
1113 Radio Australia: Music.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Let's Sing Together. A sing-along.
1130 BBC: Meridian. See W 0630.
1130 Radio Australia: Connections. See S 1530.
1134 Deutsche Welle: Hello Africa.
1137 Radio Netherlands: Newslane. See S 0037.
1145 Radio Korea: Listeners' Forum. Listener opinions.
1152 Radio Netherlands: Dutch Rock.

Saturdays

1109 Deutsche Welle: Africa This Week.
1113 Radio Australia: Music.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Sites and Sounds. See S 0020.
1130 BBC: Meridian. See W 0630.
1130 Radio Australia: Matters Of Faith. See M 0430.
1134 Deutsche Welle: Mailbag Africa.
1135 Radio Korea: From Us to You. See S 0035.
1137 Radio Netherlands: Newslane. See S 0037.
1152 Radio Netherlands: Asianac. A live magazine.

1200 UTC

[8:00 AM EDT/5:00 AM PDT]

FREQUENCIES

| | | | | | | | | | | | |
|-----------------|--------------------------|---------|---------|---------|---------|-----------------|---------------------------|---------|---------|---------|---------|
| 1200-1300 | ABC Perth | 9610na | | | | 1200-1210 | Radio New Zealand | 9700pa | | | |
| 1200-1300 | AWR Costa Rica | 9725ca | | | | 1200-1300 | Radio Nigeria | 4990do | 7285do | | |
| 1200-1230 | BBC London | 6045eu | 6180eu | 6190af | 6195eu | 1200-1230 as | Radio Norway | 17820me | 21695as | | |
| | | 9410eu | 9515na | 9660eu | 9740na | 1200-1230 | Radio Polonia, Warsaw | 6095eu | 11815eu | | |
| | | 9750eu | 9760eu | 11750as | 11760me | 1200-1300 sa | Radio Romania Int'l | 15365as | 15390as | 17720as | |
| | | 11940af | 12095eu | 15070eu | 15220na | 1200-1230 | Radio Tanzania | 5985af | 9684af | 11765af | |
| | | 15310as | 15420af | 15575me | 17640va | 1200-1230 | Radio Tashkent | 7325as | 9715as | 15460as | |
| | | 17705eu | 17790af | 17885af | 21470af | 1200-1230 s | Radio Thailand | 4830as | 9655as | 11905as | |
| | | 21660af | | | | 1200-1300 | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| | | | | | | 1200-1300 | RTM Malaysia | 7295do | | | |
| | | | | | | 1200-1300 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | |
| 1200-1300 | BBS Bahrain | 6010me | | | | 1200-1300 | SLBS, Sierra Leone | 3316do | 5980do | | |
| 1200-1300 | CFCX Montreal | 6005do | | | | 1200-1300 | TWR Bonaire | 11815am | 15345am | | |
| 1200-1300 | CFRX Toronto | 6070do | | | | 1200-1230 smwha | Ulaanbaatar R., Mongolia | 11850as | 12015as | | |
| 1200-1300 | CKZU Vancouver | 6160do | | | | 1200-1215 | V. of Cambodia | 9695as | 11938as | | |
| 1200-1300 | CSM World Svc, Boston | 9475am | 9495am | 13625am | 13760am | 1200-1230 mtwhf | Vatican Radio | 17865as | 21515as | | |
| | | 15610pa | | | | 1200-1230 | Voice of America | 6110as | 9760as | 11715as | 15155as |
| | | | | | | | | 15425as | | | |
| 1200-1300 | HCJB Quito | 11925am | 15115am | 17890am | 21455om | 1200-1300 | Voice of Kenya | 4935do | | | |
| 1200-1300 mtwhf | Italian Radio Relay Svc | 9815eu | | | | 1200-1300 | Voice of Nigeria | 7255af | | | |
| 1200-1300 | KTNB Salt Lake City | 7510am | | | | 1200-1300 | WHRI Noblesville, Indiana | | 9465am | | |
| 1200-1210 w | Malawi B'casting Corp. | 3381do | 5995do | | | 1200-1300 | WWCR Nashville | 15690na | | | |
| 1200-1300 sa | R. E. Africa, Eq. Guinea | 9585af | | | | 1200-1300 | WWCR Nashville, TN | 12160am | 15690am | | |
| 1200-1300 | Radio 1, Accra, Ghana | 4915do | | | | 1200-1300 | WYFR Okeechobee | 5950am | 6015am | 11580am | 17750am |
| 1200-1225 sa | Radio 2, Accra, Ghana | 3366do | | | | 1215-1230 | Radio Bayrak, Cyprus | 6150va | | | |
| 1200-1300 | Radio Australia | 5995va | 6080va | 7240va | 9580va | 1215-1300 | Radio Cairo | 17595as | | | |
| | | 9710va | 11720pa | 11800va | 11930va | 1215-1300 | Radio Korea | 9750am | | | |
| | | 21520pa | 21720va | | | 1226-1300 | Radio 2, Accra, Ghana | 7 295do | | | |
| 1200-1300 | Radio Beijing | 8425as | 11600as | 11660as | 11855as | 1230-1300 | BBC London | 6045eu | 6180eu | 6190af | 6195ca |
| | | 15450as | 17855na | | | | | 9410eu | 9515na | 9660eu | 9740na |
| 1200-1300 mtwhf | Radio Canada Int'l | 9635am | 11855am | 17820am | | | | 9750eu | 9760eu | 11760me | 11940af |
| 1200-1300 mtwhf | Radio Douala, Cameroon | 4795do | | | | | | 12095eu | 12170as | 15070eu | 15220na |
| 1200-1300 | Radio Jordan | 13655me | | | | | | 15310as | 15420af | 15575me | 17640va |
| 1200-1300 | Radio Korea | 9750na | | | | | | 17705eu | 17790af | 17885af | 21470af |
| 1200-1230 | Radio Mogadishu, Somalia | 6095af | | | | | | 21660af | | | |
| 1200-1300 | Radio Moscow | 9600na | 11900na | 11940va | 12025va | 1230-1300 | Radio Bangladesh | 15200as | 15605as | 15647as | 17750as |
| | | 15110va | 15140va | 15155va | 15205va | 1230-1255 mtwhf | Radio Finland | 15400am | 21550am | | |
| | | 15220na | 15375va | 15460na | 15480va | 1230-1300 | Radio France Int'l | 9805eu | 11670eu | 15155eu | 15195eu |
| | | 15500va | 15540va | 15550va | 17610na | | | 21635na | 21645na | | |
| | | 17655va | 17670na | 17760va | 17765va | 1230-1300 | Radio Sweden | 11715as | 17740as | 21570as | |
| | | 17805va | 17810va | 17815va | 17830va | 1230-1300 | Sri Lanka B'casting Corp. | 6075as | 9720as | | |
| | | 21630va | 21645va | 21655va | 21690va | 1230-1300 | Voice of America | 6110as | 9760as | 11715as | 15155as |
| | | 21715va | 21740va | 21785va | 21790va | | | 15425as | | | |
| | | 21800va | 21845va | | | 1230-1300 | Voice of Vietnam | 9840as | 12020as | 15010as | |
| 1200-1225 | Radio Netherlands | 5955eu | 9715eu | 17575eu | 21480eu | 1235-1245 | Voice of Greece | 15550am | 15650am | 17525am | |
| | | 21520eu | | | | 1240-1300 | Radio Prague Inter-Progra | 6055eu | 7345eu | 9505eu | |

SELECTED PROGRAMS

Sundays

- 1201 BBC: Play Of The Week. See S 0101.
 1227 Radio Australia: Tattslotto Results. And tonight's winning numbers are.
 1230 Radio Australia: Soundabout. Young, contemporary music from Australia and around the world.
 1230 Radio Korea: Echoes of Korean Music.
 1250 Radio Korea: Shortwave Feedback.

Mondays

- 1215 BBC: Quiz. This month, hear "My Word" (through December 9th), the ever-popular quiz about words.
 1230 Radio Australia: Soundabout. See S 1230.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 Radio Korea: Seoul Calling.
 1245 BBC: Sports Roundup. See S 0315.
 1255 Radio Korea: Let's Learn Korean!

Tuesdays

- 1215 BBC: Multitrack 1: Top 20. See M 2330.

- 1230 Radio Australia: Soundabout. See S 1230.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 Radio Korea: Seoul Calling.
 1245 BBC: Sports Roundup. See S 0315.
 1255 Radio Korea: Let's Learn Korean!

Wednesdays

- 1215 BBC: New Ideas. See M 1615.
 1227 Radio Australia: Tattslotto Results. See S 1227.
 1230 Radio Australia: Soundabout. See S 1230.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 BBC: Talks. See M 1635.
 1235 Radio Korea: Seoul Calling.
 1245 BBC: Sports Roundup. See S 0315.
 1255 Radio Korea: Let's Learn Korean!

Thursdays

- 1215 BBC: Multitrack 2. See W 2330.
 1230 Radio Australia: Soundabout. See S 1230.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 Radio Korea: Seoul Calling.

- 1245 BBC: Sports Roundup. See S 0315.
 1255 Radio Korea: Let's Learn Korean!

Fridays

- 1215 BBC: Feature. Interrupted by the Gulf War, "1992 And The European Vision" is re-aired this month (through 25th).
 1230 Radio Australia: This Australia. See S 0430.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 Radio Korea: Let's Sing Together.
 1245 BBC: Sports Roundup. See S 0315.

Saturdays

- 1215 BBC: Multitrack 3. See F 2330.
 1227 Radio Australia: Tattslotto Results. See S 1227.
 1230 Radio Australia: Women In Politics. See A 0330.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 Radio Korea: Sites and Sounds. See S 0020.
 1245 BBC: Sports Roundup. See S 0315.
 1250 Radio Korea: From Us to You. See S 0035.

1300 UTC

[9:00 AM EDT/6:00 AM PDT]

FREQUENCIES

| | | | | | |
|-----------------|--------------------------|---------|---------|---------|---------|
| 1300-1400 | ABC Perth | 9610 | | | |
| 1300-1330 | BBC London | 5975eu | 6045eu | 6180eu | 6190af |
| | | 6195ca | 9410eu | 9515na | 9660eu |
| | | 9740as | 9750eu | 9760eu | 11750as |
| | | 11760me | 11820as | 11940af | 12095eu |
| | | 15070va | 15310as | 15420af | 15575me |
| 1300-1330 | BBC London | 7180as | 15220na | 17640va | 17705eu |
| | | 17790af | 17885af | 21470af | 21660af |
| 1300-1400 | BBS Bahrain | 6010me | | | |
| 1300-1325 mtwhf | BRT, Brussels | 21810na | | | |
| 1300-1400 | CFCX Montreal | 6005do | | | |
| 1300-1400 | CFRX Toronto | 6070do | | | |
| 1300-1400 | CKZU Vancouver | 6160do | | | |
| 1300-1400 | CSM World Svc, Boston | 9425as | 9495pa | 13625pa | 13760pa |
| | | 15610pa | | | |
| 1300-1400 | FEBC Manila | 11685pa | | | |
| 1300-1400 | FEBC Manila | 11850as | | | |
| 1300-1400 | HCJB Quito | 11925am | 15115am | 17890am | 21455am |
| 1300-1400 mtwhf | Italian Radio Relay Svc | 9815eu | | | |
| 1300-1400 | KTBN Salt Lake City | 7510 | | | |
| 1300-1400 sa | R. E. Africa, Eq. Guinea | 9585af | | | |
| 1300-1400 | Radio 1, Accra, Ghana | 4915do | | | |
| 1300-1400 | Radio 2, Accra, Ghana | 7295do | | | |
| 1300-1400 | Radio Australia | 5995va | 6080va | 7240va | 9580va |
| | | 9710va | 9770va | 11720va | 21720va |
| 1300-1400 | Radio Beijing | 9670as | 11600as | 11660na | 11855na |
| 1300-1330 | Radio Cairo | 17595as | | | |
| 1300-1400 s | Radio Canada Int'l | 11955am | 17820am | | |
| 1300-1330 mtwhf | Radio Douala, Cameroon | 4795do | | | |
| 1300-1330 | Radio Federal Yugoslavia | | 17725eu | 17740na | 21605as |
| 1300-1330 as | Radio Finland | 15400na | 21550na | | |
| 1300-1315 | Radio Jordan | 13655na | | | |
| 1300-1400 | Radio Jordan | 13655na | | | |
| 1300-1315 | Radio Korea | 9750na | | | |
| 1300-1400 | Radio Moscow | 7175va | 7315va | 7370va | 9785va |
| | | 9885va | 11685va | 11840na | 11900am |
| | | 12025va | 12030va | 12070va | 15110va |
| | | 15155va | 15205va | 15375va | 15405va |
| | | 15480va | 15500va | 15540va | 15550va |
| | | 15590va | 15595va | 17560va | 17595va |
| | | 17630va | 17635va | 17655va | 17670va |
| | | 17760va | 17805va | 17810va | 17815va |
| | | 17830va | 17890va | 17940va | 21630va |
| | | 21645va | 21690va | 21715va | 21740va |

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|-----------------|---------------------------|---------|---------|---------|---------|--|
| 1300-1400 | Radio Moscow | 21785va | 21790va | 21845va | | |
| 1300-1400 | Radio Nigeria | 4990do | 7285do | | | |
| 1300-1330 as | Radio Norway | 9590eu | 11860eu | | | |
| 1300-1400 | Radio Pyongyang | 9325eu | 9345eu | 9640as | 13650as | |
| | | 15230as | | | | |
| 1300-1400 | Radio Romania Int'l | 11940eu | 15365eu | 17720eu | 17850eu | |
| 1300-1330 | Radio Sweden | 11960as | 17740as | 21570as | | |
| 1300-1400 sa | Radio Tanzania | 5985af | 9684af | 11765af | | |
| 1300-1400 | RTM Malaysia | 7295do | | | | |
| 1300-1400 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | | |
| 1300-1400 | SLBS, Sierra Leone | 3316do | 5980do | | | |
| 1300-1400 | Sri Lanka B'casting Corp. | 6075as | 9720as | | | |
| 1300-1330 | Swiss Radio Int'l | 6165eu | 9535eu | 12030eu | | |
| 1300-1330 | TWR Boniare | 11815am | 15345am | | | |
| 1300-1330 | Voice of America | 6110as | 9760as | 11715as | 15155as | |
| | | 15245as | 15280as | | | |
| 1300-1325 | Voice of Kenya | 4935do | | | | |
| 1300-1400 | Voice of Nigeria | 7255af | | | | |
| 1300-1400 | WHRI Noblesville | 9465 | 11790 | | | |
| 1300-1400 | WWCR Nashville | 15690 | | | | |
| 1300-1400 | WYFR Keeschabee | 5950am | 6015am | 11580am | 17750af | |
| 1315-1330 | Radio Voice of Lebanon | 5me | 6549.5 | | | |
| 1325-1400 mtwhf | Voice of Kenya | 4935do | | | | |
| 1330-1400 | All India Radio, Delhi | 9565as | 11760as | 15335as | | |
| 1330-1400 | BBC London | 5975eu | 6045eu | 6180eu | 6190af | |
| | | 6195ca | 9410eu | 9515na | 9660eu | |
| | | 9740as | 9750eu | 9760eu | 11750as | |
| | | 11820as | 11940af | 12095eu | 15070va | |
| | | 15220na | 15310as | 15420af | 15575me | |
| 1330-1400 | BBC London | 7180as | 17640va | 17705eu | 17790af | |
| | | 17885af | 21470af | 21660af | | |
| 1330-1355 s | BRT, Brussels | 21810na | | | | |
| 1330-1400 | Nat'l Radio of Laos | 7112as | | | | |
| 1330-1400 | Radio Austria Int'l | 15430as | | | | |
| 1330-1400 | Radio Canada Int'l | 6095as | 9535as | 9700as | 11795as | |
| 1330-1400 | Radio Douala, Cameroon | 4795do | | | | |
| 1330-1400 | Radio Finland | 15400na | 21550na | | | |
| 1330-1400 a | Radio Republik Indonesia | 3385do | 6070do | | | |
| 1330-1400 | Radio Tashkent | 7325as | 9715as | 15460as | | |
| 1330-1400 | Swiss Radio Int'l | 7480as | 11695as | 13635as | 15570as | |
| | | 17830as | 21695as | | | |
| 1330-1400 | UAE Radio, Dubai | 13675eu | 15320eu | 15435as | 21605as | |
| 1330-1400 | Voice of America | 6110as | 9760as | 15155as | 15425as | |
| 1330-1400 | Voice of Turkey | 9675eu | 17785as | | | |
| 1330-1400 | Voice of Vietnam | 9840as | 12020as | 15010as | | |

SELECTED PROGRAMS

Sundays

1313 Radio Australia: Sports Report. Results and reports on sporting events from the world over.
1330 Radio Australia: Fine Music Australia. See S 0230.

Mondays

1300 Radio Korea: Sports Roundup.
1313 Radio Australia: Sports Report. See S 1313.
1330 Radio Australia: Music Of Radio Australia.

Tuesdays

1300 Radio Korea: Korean Cultural Variety.
1313 Radio Australia: Sports Report. See S 1313.
1330 Radio Australia: Music Of Radio Australia.

Wednesdays

1300 Radio Korea: Pulse of Korea.



Radio Korea's Abn Hong-Soo interviews a competitor at the 1988 Summer Olympics in Seoul

1313 Radio Australia: Sports Report. See S 1313.
1330 Radio Australia: Just Out. See M 0030.

Thursdays

1300 Radio Korea: Focus This Week.
1313 Radio Australia: Sports Report. See S 1313.
1330 Radio Australia: Music Of Radio Australia.

Fridays

1300 Radio Korea: Listeners' Forum.
1313 Radio Australia: Sports Report. See S 1313.
1330 Radio Australia: Music Of Radio Australia.

Saturdays

1313 Radio Australia: Sports Report. See S 1313.
1330 Radio Australia: Music Of Radio Australia.

1400 UTC

[10:00 AM EDT/7:00 AM PDT]

FREQUENCIES

| | | | | | |
|-------------|--------------------------|---------|---------|---------|---------|
| 1400-1500 | All India Radio, Delhi | 9565as | 11760as | 15335as | |
| 1400-1430 | BBC London | 5975eu | 6045eu | 6180eu | 6190af |
| | | 6195as | 9410eu | 9660eu | 9740as |
| | | 9750eu | 9760eu | 11750as | 11820as |
| | | 11940af | 12095eu | 15070eu | 15310as |
| | | 15575me | 17640va | 17705eu | 17790af |
| 1400-1430 | BBC London | 7180as | 17880af | 21470af | 21660af |
| 1400-1500 | BBS Bahrain | 6010me | | | |
| 1400-1425 | BRT Belgium | 21810na | | | |
| 1400-1500 | Cameroon Radio-TV | 4850na | | | |
| 1400-1500 | CFCX Montreal | 6005do | | | |
| 1400-1500 | CFRX Toronto | 6070do | | | |
| 1400-1500 | CSM World Svc, Boston | 9530pa | 13625pa | 13760pa | 15610pa |
| | | 21670pa | | | |
| 1400-1500 | FEBC Manila | 11850as | | | |
| 1400-1500 | FEBC Manila | 11685pa | | | |
| 1400-1500 | HCJB Quito | 11925na | 15115na | 17890na | 21455na |
| 1400-1500 | King of Hope, Lebanon | 6280me | | | |
| 1400-1500 | KTBN Salt Lake City | 7510ww | | | |
| 1400-1410 | Malawi B'casting Corp. | 3381do | | | |
| 1400-1500 | R. for Peace Int'l | 7375am | 13630am | 15030am | 21465am |
| 1400-1500 | Radio 1, Accra, Ghana | 4915do | | | |
| 1400-1500 | Radio 2, Accra, Ghana | 7295do | | | |
| 1400-1500 | Radio Australia | 5995va | 6080va | 7240va | 9580va |
| | | 9710va | 11720va | 17630va | |
| 1400-1500 | Radio Beijing | 4200as | 11815as | 11855na | 15165na |
| 1400-1430 | Radio Canada Int'l | 11935eu | 15305eu | 15315eu | 15325eu |
| | | 17795eu | 17820eu | 21545eu | |
| 1400-1500 s | Radio Canada Int'l | 11955 | 17820 | | |
| 1400-1430 | Radio Douala, Cameroon | 4795do | | | |
| 1400-1430 | Radio Federal Yugoslavia | 21715am | | | |
| 1400-1500 | Radio France Int'l | 11910as | 17650as | 21770as | |
| 1400-1500 | Radio Japan | 9535am | 11815as | 11865as | |
| 1400-1410 | Radio Juba, Sudan | 9540do | 9550do | | |
| 1400-1500 | Radio Korea | 9570as | | | |
| 1400-1500 | Radio Moscow | 7370va | 9785va | 11765va | 11840na |
| | | 11850va | 11870va | 11905va | 12025va |
| | | 12030va | 12050va | 15140va | 15180va |
| | | 15205va | 15375va | 15560va | 17570va |
| | | 17635va | 17655va | 17670va | 17810va |

| | | | | | |
|------------------|----------------------------|---------|---------|---------|---------|
| | | 17815va | 17890va | 21505va | 21630va |
| | | 21645va | 21690va | 21740va | 21785va |
| | | 21790va | 21845va | | |
| 1400-1500 | Radio Nigeria | 4990do | 7285do | | |
| 1400-1500 sa | Radio Tanzania | 5985af | 9684af | 11765af | |
| 1400-1500 | RTM Malaysia | 7295do | | | |
| 1400-1500 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | |
| 1400-1500 | SLBS, Sierra Leone | 3316do | 5980do | | |
| 1400-1500 | Sri Lanka B'casting Corp. | 6075as | 9720as | | |
| 1400-1430 | Swiss Radio Int'l | 6165eu | 9535eu | 12030eu | |
| 1400-1500 | VLW6 Wanneroo, Australia | 6140 | | | |
| 1400-1500 | Voice of America | 6110as | 7125as | 9645as | 9760as |
| | | 15160as | 15205as | 15395as | 15425 |
| 1400-1500 mtwhf | Voice of Kenya | 4935do | | | |
| 1400-1500 | Voice of Nigeria | 7255af | | | |
| 1400-1500 | WHRI Noblesville | 9465na | 15105na | | |
| 1400-1500 | WRNO New Orleans | 15420na | | | |
| 1400-1500 | WWCR Nashville | 12160na | 15690am | | |
| 1400-1500 | WYFR Okeechobee | 6015na | 11580sa | 17750af | |
| 1405-1430 | Radio Finland | 6120eu | 11755eu | 11820eu | 15185eu |
| | | 21550eu | | | |
| 1415-1500 | BBS, Bhutan | 5023do | | | |
| 1420-1500 | Radio Jordan | 9560?? | | | |
| 1430-1500 | BBC London | 5975eu | 6045eu | 6180eu | 6190af |
| | | 6195as | 9410eu | 9740as | 9750eu |
| | | 9760eu | 11750as | 11820as | 11940af |
| | | 12095eu | 15070va | 15310as | 15575me |
| | | 17640va | 17705eu | 17790af | 17880af |
| | | 7180as | 21470af | 21660af | |
| 1430-1500 | BBC London | 7180as | 21470af | 21660af | |
| 1430-1500 | Guizhou PBS Guiyang China | 3260do | 7275do | | |
| 1430-1500 | Kol Israel, Jerusalem | 15590am | 17590am | | |
| 1430-1500 | Radio Austria Int'l | 6155eu | 11780as | 13730eu | 21490va |
| 1430-1500 mtwhfa | Radio Douala, Cameroon | 4795do | | | |
| 1430-1500 | Radio Netherlands | 5955eu | 13770eu | 15150eu | 17575eu |
| | | 17605eu | 21480eu | | |
| 1430-1455 | Radio Polonia, Warsaw | 6135eu | 9540eu | 11815eu | |
| 1430-1500 | Voice of Myanmar | 5990do | | | |
| 1435-1450 | Nei Mongol PBS Hohot China | 3970do | 7105do | | |
| 1440-1450 mtwhfa | R Nacional de Venezuela | 9540om | | | |
| 1445-1500 smwha | Ulaanbaatar R., Mongolia | 9575as | 13780as | | |
| 1445-1500 | Vatican Radio | 6248eu | 9645eu | 11740eu | |

SELECTED PROGRAMS

Sundays

- 1401 BBC: Feature. This month, hear the EC's Youth Orchestra on "European Harmony" (6th), followed by eastern European music on "Eastern Approaches" (through November 3rd).
- 1415 Radio Korea: Echoes of Korean Music.
- 1430 BBC: Anything Goes. Variety of music.
- 1430 Radio Australia: Communicator. The latest developments in the media and comms. world.
- 1430 Radio Netherlands: Happy Station.
- 1435 Radio Korea: Shortwave Feedback.

Mondays

- 1405 BBC: Outlook. Conversation and controversy.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Seoul Calling.
- 1425 Radio Australia: Stock Exchange Report.
- 1430 BBC: Off The Shelf. See M 0430.
- 1430 Radio Australia: Music.
- 1437 Radio Netherlands: Newslines. See S 0037.
- 1440 Radio Korea: Let's Learn Korean!
- 1445 BBC: Talks. Martin Redfern returns with re-runs of his "Journey To The Center Of The Earth" (through 28th).
- 1445 Radio Australia: Word Of Mouth. Oral histories of Australians.
- 1445 Radio Korea: Sports Roundup.
- 1452 Radio Netherlands: The Research File.

Tuesdays

- 1405 BBC: Outlook. See M 1405.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Seoul Calling.
- 1425 Radio Australia: Stock Exchange. See M 1425.
- 1430 BBC: Off The Shelf. See M 0430.
- 1430 Radio Australia: Lane's Company. Terry Lane.
- 1437 Radio Netherlands: Newslines. See S 0037.
- 1440 Radio Korea: Let's Learn Korean! See M 1140.
- 1445 BBC: Classical Music. See M 0145.
- 1445 Radio Korea: Korean Cultural Variety.
- 1452 Radio Netherlands: Images.

Wednesdays

- 1405 BBC: Outlook. See M 1405.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Seoul Calling.
- 1425 Radio Australia: Stock Exchange. See M 1425.
- 1430 BBC: Off The Shelf. See M 0430.
- 1430 Radio Australia: Innovations. Desley Blanch.
- 1437 Radio Netherlands: Newslines. See S 0037.
- 1440 Radio Korea: Let's Learn Korean!
- 1445 BBC: Good Books. Recommendations of books.
- 1445 Radio Korea: Pulse of Korea.
- 1452 Radio Netherlands: Feature.

Thursdays

- 1405 BBC: Outlook. See M 1405.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Seoul Calling.

- 1425 Radio Australia: Stock Exchange Report.
- 1430 BBC: Off The Shelf. See M 0430.
- 1430 Radio Australia: Monitor. Science.
- 1437 Radio Netherlands: Newslines. See S 0037.
- 1440 Radio Korea: Let's Learn Korean!
- 1445 BBC: Recording Of The Week. See M 0545.
- 1445 Radio Korea: Focus This Week.
- 1452 Radio Netherlands: Media Network.

Fridays

- 1405 BBC: Outlook. See M 1405.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Let's Sing Together.
- 1425 Radio Australia: Stock Exchange. See M 1425.
- 1430 BBC: Off The Shelf. See M 0430.
- 1430 Radio Australia: Science File.
- 1437 Radio Netherlands: Newslines. See S 0037.
- 1445 BBC: Talks. See S 0445.
- 1445 Radio Korea: Listeners' Forum.
- 1452 Radio Netherlands: Dutch Rock.

Saturdays

- 1401 BBC: Sportsworld with Paddy Feeny.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Sites and Sounds. See S 0020.
- 1430 Radio Australia: Interaction. See S 0530.
- 1435 Radio Korea: From Us to You. See S 0035.
- 1437 Radio Netherlands: Newslines. See S 0037.
- 1452 Radio Netherlands: Asiascan.

1500 UTC

[11:00 AM EDT/8:00 AM PDT]

FREQUENCIES

| | | | | | | | | | | | | | |
|----------------|---------------------------|---------|---------|---------|---------|------------------|---------------------------|--|--|---------|---------|---------|---------|
| 1500-1530 | BBC London | 3915as | 5975eu | 6045eu | 6180eu | | | | | 17655va | 17670va | 17755va | 17775va |
| | | 6190af | 6195eu | 6195as | 9410eu | | | | | 17795va | 17810va | 17815va | 21615va |
| | | 9740na | 9750eu | 9760eu | 11750as | | | | | 21625va | 21645va | 21690va | 21740va |
| | | 11775na | 11940af | 12095eu | 15070va | | | | | 21785va | 21790va | 21845va | |
| 1500-1530 | BBC London | 15310as | 15400af | 15420af | 15575me | 1500-1525 | Radio Netherlands | | | 5955eu | 13770eu | 15150eu | 17575ee |
| | | 7180as | 15260na | 17640va | 17705eu | | | | | 17605eu | 21480eu | | |
| | | 21790af | 17860af | 17880af | 21470af | 1500-1600 | Radio Nigeria | | | 4990do | 7285do | | |
| | | 21490af | 21660af | | | 1500-1530 as | Radio Norway | | | 15355na | 17790na | | |
| 1500-1600 | BBS Bahrain | 6010me | | | | 1500-1600 | Radio Pyongyang | | | 9325va | 9640va | 9977va | 11760va |
| 1500-1600 | Cameroon Radio-TV | 4850do | | | | 1500-1530 | Radio Romania Int'l | | | 11940as | 15250as | 15335as | 17720as |
| 1500-1600 | CFCX Montreal | 6005do | | | | | | | | 17745as | 17775as | | |
| 1500-1600 | CFRX Toronto | 6070do | | | | 1500-1600 | Radio RSA, Johannesburg | | | | 7230af | 15210af | |
| 1500-1600 | CSM World Svc, Boston | 9530pa | 13625pa | 13760pa | 15610pa | 1500-1530 sa | Radio Tanzania | | | 5985af | 9684af | 11765af | |
| | | 21670pa | | | | 1500-1600 | RTM Malaysia | | | 7295do | | | |
| 1500-1550 | Deutsche Welle | 9735af | 11965af | 13610af | 17735af | 1500-1600 | SBC Radio 1, Singapore | | | 5010do | 5052do | 11940do | |
| | | 17765af | 21600af | | | 1500-1600 | SLBS, Sierra Leone | | | 3316do | 5980do | | |
| 1500-1555 | FEBA Seychelles | 11865af | | | | 1500-1600 | Sri Lanka B'casting Corp. | | | 6075as | 9720as | | |
| 1500-1600 whfa | FEBA Seychelles | 9590as | 15330af | | | 1500-1515 smwha | Ulaanbaatar R., Mongolia | | | 9575as | 13780as | | |
| 1500-1600 | FEBA Seychelles | 9590as | 11865as | 15330as | | 1500-1600 | Voice of America | | | 7125as | 9645as | 9700as | 15205va |
| 1500-1600 | FEBC Manila | 11685as | | | | | | | | 15260as | 15395as | | |
| 1500-1600 | HCJB Quito | 11925na | 15115na | 17890na | 21455na | 1500-1600 | Voice of Ethiopia | | | 7165af | | | |
| 1500-1600 | KNLS Anchor Point, Alaska | | 9615as | | | 1500-1600 mtwhf | Voice of Kenya | | | 4935do | | | |
| 1500-1600 | KTBN Salt Lake City | 15590na | | | | 1500-1600 | Voice of Myanmar | | | 5990do | | | |
| 1500-1600 | KTWR Guam | 11650as | | | | 1500-1600 | Voice of Nigeria | | | 7255af | | | |
| 1500-1600 | R. for Peace Int'l | 7375am | 13630am | 15030am | 21465am | 1500-1600 | WHRI Noblesville | | | 15105na | 21840sa | | |
| 1500-1600 | Radio 1, Accra, Ghana | 4915do | | | | 1500-1600 | WRNO New Orleans | | | 15420na | | | |
| 1500-1600 | Radio 2, Accra, Ghana | 7295do | | | | 1500-1600 | WWCR Nashville | | | 15690am | 17525am | | |
| 1500-1600 | Radio Australia | 5995va | 6080va | 7240va | 9580va | 1500-1600 | WYFR Okeechobee | | | 11580na | 11830na | 17750af | |
| | | 9710va | 9770va | 11720va | 12000va | 1523-1530 | R. Veritas Asia, Manila | | | 15140as | | | |
| | | 13745va | 17630va | | | 1530-1600 | BBC London | | | 6190af | 6195eu | 6195as | 7180as |
| 1500-1600 | Radio Bangladesh | 4880do | | | | | | | | 9410eu | 9740na | 9750eu | 11750as |
| 1500-1600 | Radio Beijing | 4200as | 11815as | 11855am | 15165am | | | | | 11775na | 11940af | 12095eu | 15070va |
| 1500-1530 | Radio Canada Int'l | 11935eu | 15305eu | 15325eu | 17820eu | | | | | 15260as | 15310as | 15400af | 17640va |
| | | 21545eu | | | | | | | | 17705eu | 17880af | 21470af | 21660af |
| 1500-1600 s | Radio Canada Int'l | 11955 | 17820 | | | 1530-1600 | Radio Sweden | | | 17875na | 21500na | | |
| 1500-1600 | Radio Japan | 11865am | 21700eu | | | 1530-1600 | Radio Tanzania | | | 5985af | 9684af | 11765af | |
| 1500-1600 | Radio Moscow | 6065va | 7315va | 9865va | 11695va | 1530-1600 | Radio Tirana | | | 9580af | 11825af | | |
| | | 11840na | 11890va | 11900va | 11995va | 1530-1600 | Radio Zambia Int'l | | | 9505af | 11880af | 17895af | |
| | | 12005va | 12015va | 12025va | 12030va | 1530-1600 | Sudan Nat'l B'casting Cor | | | 9540do | 9550do | 11635do | |
| | | 12050va | 12070va | 15140va | 15180va | 1530-1600 | Swiss Radio Int'l | | | 13685af | 15430af | 17830af | 21630af |
| | | 15205va | 15375va | 15465va | 15480va | 1530-1600 mtwha | Vatican Radio | | | 6185eu | | | |
| | | 15500va | 15540va | 15560va | 15580va | 1530-1540 mtwhfa | Voice of Greece | | | 11645eu | 15550am | 17525am | |
| | | | | | | 1545-1600 | Vatican Radio | | | 11715as | 15090as | 17870as | |

SELECTED PROGRAMS

Sundays

- 1509 Deutsche Welle: Religion and Society. News and developments concerning the world's major religions.
- 1513 Deutsche Welle: Through German Eyes. German journalists provide a perspective on world events.
- 1513 Radio Australia: Music Of Radio Australia.
- 1515 BBC: Concert Hall. Classical music recordings from the world's great concert halls.
- 1530 Radio Australia: Connections. Trevor Robertson presents education issues of the Asian/Pacific region.
- 1534 Deutsche Welle: Pop from Germany. A look at the German pop music scene.

Mondays

- 1509 Deutsche Welle: Newsline Cologne. See M 1109.
1513 Radio Australia: Pacific Sunrise. Business and
export development in the Pacific basin.
1515 BBC: Feature/Drama. See M 0101.
1530 Radio Australia: Points Of Law. Geraldine Coutts
reports on the law and society in Oceania.
1534 Deutsche Welle: Monday Special. An interview or
report on an event or development with special
relevance for Africa.

Tuesdays

- | | |
|------|---|
| 1509 | Deutsche Welle: Newsline Cologne. |
| 1513 | Radio Australia: Music Of Radio Australia. |
| 1515 | BBC: A Jolly Good Show. Dave Lee Travis presents listener rock music requests. |
| 1530 | Radio Australia: AgriNews. News about agriculture of the Asian/Pacific region, with Denis Gibbons. |
| 1534 | Deutsche Welle: Insight. An in-depth feature, giving the background to political events and international developments. |

Wednesdays

- 1509 Deutsche Welle: Newslane Cologne.
1513 Radio Australia: Music Of Radio Australia.
1515 BBC: Talks. See M 2315.
1530 BBC: Comedy Show. In this month's comic offering, "It's A Funny Old World" (3rd/10th/17th/24th); Halloween brings a comic look at the month just past, "Two Cheers For October" (31st).
1530 Radio Australia: Matters Of Faith. See M 0430.
1534 Deutsche Welle: Living in Germany. See M 0116.

Thursdays

- 1509 Deutsche Welle: Newslines Cologne.
1513 Radio Australia: Music Of Radio Australia.

- 1515 BBC: Music With Matthew. Brian Matthew with classical music selections.
1530 Radio Australia: Business Horizons.
1534 Deutsche Welle: Spotlight on Sport. Background stories and coverage of important sporting events.

Fridays

- 1509 Deutsche Welle: Newslines Cologne. See M 1109.
1513 Radio Australia: Music Of Radio Australia.
1515 BBC: Music Review. See H 2315.
1530 Radio Australia: Land And Culture.
1534 Deutsche Welle: Economic Notebook. A look at
the economic scene in Germany and around the
world.

Saturdays

- 1509 Deutsche Welle: Africa Highlight. A weekly feature on an important topic concerning Africa.
- 1513 Deutsche Welle: Development Forum. Reports and interviews on projects and progress in Africa and Asia.
- 1513 Radio Australia: Music Of Radio Australia.
- 1515 BBC: Sportsworld. See A 1401.
- 1530 Radio Australia: One World.
- 1534 Deutsche Welle: Science and Technology. See M 0234.

1600 UTC

[12:00 PM EDT/9:00 AM PDT]

FREQUENCIES

| | | | | | |
|-----------|------------------------|---------|---------|---------|---------|
| 1600-1630 | BBC London | 1540af | 3915as | 5975as | 6190af |
| | | 6195eu | 9410eu | 9630af | 9740me |
| | | 9750eu | 11750as | 11775na | 11940af |
| | | 12095eu | 15070eu | 15400af | 17640va |
| | | 17695eu | 17705eu | 17860af | 17880af |
| 1600-1630 | BBC London | 7180as | 15260na | 15310as | 21470af |
| | | 21660af | | | |
| 1600-1700 | BBS Bahrain | 6010me | | | |
| 1600-1700 | BSKSA Saudi Arabia | 9705eu | 9720eu | | |
| 1600-1700 | CFCX Montreal | 6005do | | | |
| 1600-1700 | CFRX Toronto | 6070do | | | |
| 1600-1700 | CSM World Svc, Boston | 11580as | 13625as | 15610am | 17555am |
| | | 21640af | | | |
| 1600-1650 | Deutsche Welle | 6170as | 7225as | 15105as | 15415as |
| | | 15595as | 17810as | 21680as | |
| 1600-1630 | HCJB Quito | 11925am | 15115am | 17890am | 21455am |
| 1600-1700 | KSDA Guam | 11980as | | | |
| 1600-1700 | KTBN Salt Lake City | 15590am | | | |
| 1600-1635 | KTWR Guam | 11650as | | | |
| 1600-1610 | Malawi B'casting Corp. | 3381do | | | |
| 1600-1700 | Radio 1, Accra, Ghana | 4915do | | | |
| 1600-1700 | Radio 2, Accra, Ghana | 7295do | | | |
| 1600-1700 | Radio Australia | 5995va | 6060va | 6080va | 7240va |
| | | 9580va | 11910va | 12000va | 13605va |
| | | 13745va | 17630va | | |
| 1600-1700 | Radio Beijing | 4130af | 11575af | 15110af | 15130af |
| 1600-1630 | Radio Canada Int'l | 11935eu | 15305eu | 15325eu | 17820eu |
| | | 21545eu | | | |
| 1600-1700 | Radio France Int'l | 6175eu | 11705af | 12015af | 15530me |
| | | 17620af | 17795af | 17850af | |
| 1600-1700 | Radio Korea | 5975om | 9870af | | |
| 1600-1610 | Radio Lesotho | 4800do | | | |
| 1600-1700 | Radio Moscow | 6065va | 7305va | 7330va | 7370va |
| | | 9480va | 9885va | 11630va | 11730va |
| | | 11765va | 11840na | 11890va | 11900va |
| | | 11940va | 11995va | 12005va | 12015va |

| | | | |
|---------|---------|---------|---------|
| 12035va | 12050va | 15185va | 15375va |
| 15480va | 15500va | 15505va | 15525va |
| 15555va | 15560va | 17570am | 17610am |
| 17655va | 17670va | 17765va | 17765va |
| 17775va | 17775va | 17785va | 17810am |
| 17850va | 21475va | 21480va | 21490va |
| 21615na | 21645na | 21690va | 21740va |
| 21790va | 21845va | | |
| 4990do | | | |
| 21705me | | | |
| 13665me | 15605me | 17555me | 17895af |
| 21480af | 21530me | | |
| 6135eu | 9540eu | | |
| 7230af | 15210af | 17790af | |
| 5985af | 9684af | 11765af | |
| 9505af | 11880af | 17895af | |
| 5052do | 11940do | | |
| 3316do | 5980do | | |
| 6075as | 9720as | | |
| 9600af | | | |
| 11795af | 13675eu | 15320eu | 15400af |
| 21605eu | | | |
| 11715as | 15090as | 17870as | |
| 6248eu | 7250eu | 9645eu | 11740eu |
| 15210eu | | | |
| 3980eu | 7125as | 9645as | 9700va |
| 15205va | 15260as | 15395as | |
| 9575af | 11920af | 15410af | 15580af |
| 17800af | 21625af | | |
| 4935do | | | |
| 7255af | | | |
| 6320do | | | |
| 9840eu | 12020eu | 15010eu | |
| 15105am | 17830am | | |
| 15420 | | | |
| 15690am | | | |

continued

SELECTED PROGRAMS

Sundays

- 1609 Deutsche Welle: Arts on the Air.
 1615 BBC: Feature. See S 0230.
 1615 Radio Korea: Echoes of Korean Music.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: German by Radio. See S 0134.
 1635 Radio Korea: Shortwave Feedback.
 1645 BBC: Letter From America. See S 0545.
 1645 Radio Australia: Sports Report. See S 1313.

Mondays

- 1609 Deutsche Welle: Newline Cologne.
 1615 BBC: New Ideas. Innovative developments.
 1615 Radio Korea: News Commentary. See S 0015.
 1620 Radio Korea: Seoul Calling.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: Asia-Pacific Report.
 1635 BBC: Talks. Hear "Tales Of Earth And Water" about Indonesian travels (7th); "A Small Matter Of Taste" looks at the rather oxymoronic matter of English cuisine (through December 2nd).
 1637 Radio Netherlands: Newline. See S 0037.
 1640 Radio Korea: Let's Learn Korean!
 1645 BBC: The World Today. Int'l topics.
 1645 Radio Australia: Sports Report. See S 1313.
 1645 Radio Korea: Sports Roundup.
 1652 Radio Netherlands: The Research File.

Tuesdays

- 1609 Deutsche Welle: Newline Cologne.
 1615 BBC: Megamix.
 1615 Radio Korea: News Commentary. See S 0015.

- 1620 Radio Korea: Seoul Calling.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: Asia-Pacific Report.
 1637 Radio Netherlands: Newline. See S 0037.
 1640 Radio Korea: Let's Learn Korean!
 1645 BBC: The World Today.
 1645 Radio Australia: Sports Report. See S 1313.
 1645 Radio Korea: Korean Cultural Variety.
 1652 Radio Netherlands: Images.

Wednesdays

- 1609 Deutsche Welle: Newline Cologne.
 1615 BBC: Rock/Pop Music. See T 0630.
 1615 Radio Korea: News Commentary. See S 0015.
 1620 Radio Korea: Seoul Calling.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: Asia-Pacific Report.
 1637 Radio Netherlands: Newline. See S 0037.
 1640 Radio Korea: Let's Learn Korean!
 1645 BBC: The World Today.
 1645 Radio Australia: Sports Report. See S 1313.
 1645 Radio Korea: Pulse of Korea.
 1652 Radio Netherlands: Feature.

Thursdays

- 1609 Deutsche Welle: Newline Cologne.
 1615 BBC: Network UK. Issues and events.
 1615 Radio Korea: News Commentary. See S 0015.
 1620 Radio Korea: Seoul Calling.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: Asia-Pacific Report.
 1637 Radio Netherlands: Newline. See S 0037.

- 1640 Radio Korea: Let's Learn Korean!
 1645 BBC: The World Today.
 1645 Radio Australia: Sports Report. See S 1313.
 1645 Radio Korea: Focus This Week.
 1652 Radio Netherlands: Media Network.

Fridays

- 1609 Deutsche Welle: Newline Cologne.
 1615 BBC: Science In Action. Latest innovations.
 1615 Radio Korea: News Commentary. See S 0015.
 1620 Radio Korea: Let's Sing Together.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: Asia-Pacific Report.
 1637 Radio Netherlands: Newline. See S 0037.
 1645 BBC: The World Today.
 1645 Radio Australia: Sports Report. See S 1313.
 1645 Radio Korea: Listeners' Forum.
 1652 Radio Netherlands: Dutch Rock.

Saturdays

- 1609 Deutsche Welle: Talking Point. See S 0419.
 1615 BBC: Sportsworld. See A 1401.
 1615 Radio Korea: News Commentary. See S 0015.
 1620 Radio Korea: Sites and Sounds. See S 0020.
 1623 Deutsche Welle: Forum. See A 1513.
 1630 Radio Australia: Music Of Radio Australia.
 1634 Deutsche Welle: Religion. See S 1509.
 1635 Radio Korea: From Us to You. See S 0035.
 1637 Radio Netherlands: Newline. See S 0037.
 1645 Radio Australia: Sports Report. See S 1313.
 1652 Radio Netherlands: Airtime Africa.

continued

| | | | | | |
|-----------------|-------------------|---------------------------------|-----------------|-----------------------|--------------------------------|
| 1600-1700 | WYFR Okeechobee | 11580am 11830am 15355am 17750af | 1630-1700 | Radio Austria | 6155eu 11780as 13730eu 21490eu |
| | | 21525eu 21615af | 1630-1700 | Radio Cairo | 15255af |
| 1610-1615 mtwhf | Radio Botswana | 5955af 7255af | 1630-1700 | Radio Canada Int'l | 7150as 9555as |
| 1615-1700 | Swiss Radio Int'l | 11955eu | 1630-1700 mtwhf | Radio Netherlands | 6020af 15570af |
| 1630-1700 mwf | Alma Ata Radio | 5035do 5915do 6135do | 1630-1700 | Radio Polonia, Warsaw | 9525eu 11840eu |
| 1630-1700 | BBC London | 3915as 5975as 6190af 6196eu | 1630-1700 mtwhf | RTV Morocco | 15335af 15360af 17595af |
| | | 9410eu 9630af 9740me 11750as | 1630-1700 | RTV Rwandaise | 3330 6055 |
| | | 11775na 11940af 12095eu 15070eu | 1630-1700 | Voice of America | 3980eu 6040eu 7125as 9645as |
| | | 15260na 15310as 15400af 15420af | | | 9700va 11740va 15205va 15245va |
| | | 17640va 17695eu 17860af 17880af | | | 15260as 15395va |
| | | 21470af 21660af | | | |

1700 UTC

[1:00 PM EDT/10:00 AM PDT]

FREQUENCIES

| | | | | | |
|--------------|---------------------------|---------------------------------|-----------------|---------------------------|---------------------------------|
| 1700-1730 | BBC London | 3255af 7160me 15260na 21470af | 1700-1800 | Radio Pakistan | 11570eu 15550eu |
| | | 21660af 3915as 5975as 6005af | 1700-1730 mtwhf | Radio Portugal | 15425me |
| | | 6180eu 6190af 6195eu 9410eu | 1700-1800 | Radio Pyongyang | 9325va 9640va 9977va 11760va |
| | | 9630af 9740eu 11750as 11775na | 1700-1800 | Radio RSA, Johannesburg | 7230af 15210af 17790af |
| | | 12095eu 15070eu 15310as 15400af | 1700-1730 | Radio Sweden | 6065eu 9615eu |
| | | 15420af 17640va 17695eu 17860af | 1700-1800 | Radio Tanzania | 5985af 9684af 11765af |
| | | 17880af | 1700-1800 | Radio Zambia Int'l | 9505af 11880af 17895af |
| 1700-1800 | BBS Bahrain | 6010me | 1700-1800 mtwhf | RTV Morocco | 15335af 17595af 17815af |
| 1700-1800 | BSKSA Saudi Arabia | 9705eu 9720eu | 1700-1728 | SLBS, Sierra Leone | 3316do 5980do |
| 1700-1800 | CFCX Montreal | 6005do | 1700-1730 | Sri Lanka B'casting Corp. | 6075as 9720as |
| 1700-1800 | CFRX Toronto | 6070do | 1700-1730 | TWR Swaziland | 3200af 9520af |
| 1700-1800 | CSM World Svc, Boston | 11580as 13625as 15610am 17555am | 1700-1800 | Voice of America | 3980va 6040va 7125as 9645as |
| | | 21640af | | | 9700va 9760va 11760eu 15205va |
| 1700-1800 | HCJB Quito | 21455am 21480am 25950na | | | 15245eu 15260eu 15395as |
| 1700-1800 | KSDA Guam | 13720as | 1700-1800 | Voice of America | 9575af 11920af 15410af 15580af |
| 1700-1800 | KTBN Salt Lake City | 15590 | | | 17800af 21625af |
| 1700-1745 | R Surinam Intl via Brazil | 17835eu | 1700-1800 mtwhf | Voice of Kenya | 4935do |
| 1700-1800 | R. E. Africa, Eq. Guinea | 7190af | 1700-1800 | Voice of Nigeria | 7255af |
| 1700-1800 | Radio 1, Accra, Ghana | 4915do | 1700-1800 | WHRI Noblesville | 15105 17830 |
| 1700-1705 | Radio 2, Accra, Ghana | 7295do | 1700-1800 | WMLK Bethel | 9465eu |
| 1700-1800 | Radio Australia | 5995va 6060va 6080va 7240va | 1700-1800 | WRNO New Orleans | 15420 |
| | | 9580va 11910va 12000va 13605va | 1700-1800 | WWCR Nashville | 15690 |
| | | 13745va 17630va | 1700-1800 | WYFR Okeechobee | 13760am 21500eu |
| 1700-1710 | Radio Bafoussam, Cameroon | 4000do | 1706-1800 | Radio 2, Accra, Ghana | 3366do |
| 1700-1800 | Radio Beijing | 4130af 9570af 11575af 15225af | 1715-1745 | BBC London | 9560ca 21660ca |
| 1700-1800 | Radio Cairo | 15255af | 1715-1730 | Radio Buea, Cameroon | 3970do |
| 1700-1730 | Radio Canada Int'l | 7235eu 9555eu 15325eu 17820eu | 1728-1800 | SLBS, Sierra Leone | 3316do |
| | | 21545eu | 1730-1800 | BBC London | 3255af 7160me 21470af 21660af |
| 1700-1730 | Radio Georgia, Tbilisi | 12070eu | | | 3915as 5975as 6005af 6180eu |
| 1700-1800 | Radio Japan | 7140as 11815as 11865na 15345me | | | 6190af 6195eu 9410eu 9630af |
| 1700-1800 | Radio Moscow | 7305va 11630va 11840na 11890va | | | 9740me 11775na 12095eu 15070eu |
| | | 11940va 11960va 11995va 12005va | | | 15260na 15310as 15400af 15420af |
| | | 12015va 12030va 12035va 12050va | | | 17640va 17695eu 17860af 17880af |
| | | 15185va 15375va 15500va 15540va | 1730-1745 | Radio Bayrak, Cyprus | 6150va |
| | | 17600va 17655va 15500va 15540va | 1730-1745 a | Radio Douala, Cameroon | 4795do |
| | | 17600va 17655va 17670va 17710va | 1730-1800 a | Radio Latvia, Riga | 5935eu |
| | | 17720va 17775va 17785va 17850va | 1730-1800 | Radio Romania Int'l | 11940af 15340af 15365af 17745 |
| | | 21645va 21690va 21740va 21790va | | | 17805 |
| | | 21845va | 1730-1800 | Radio Tirana | 9580eu 11825eu |
| 1700-1725 | Radio Netherlands | 6020af 15570af | 1730-1800 | TWR Swaziland | 3200af |
| 1700-1800 | Radio Nigeria | 3326do 4990do | 1730-1800 | Vatican Radio | 17710af 17730af 21650af 25950 |
| 1700-1730 as | Radio Norway | 9655eu | 1740-1800 | Cameroon Radio-TV | 4850do |
| | | | 1745-1800 mtwhf | Radio Douala, Cameroon | 4795do |
| | | | 1745-1800 | RTV Madagascar | 3232do 3286do 5005do |

1800 UTC

[2:00 PM EDT/11:00 AM PDT]

FREQUENCIES

| | | | | | |
|------------------|----------------------------|---------|---------|---------|---------|
| 1800-1900 | All India Radio, Delhi | 11935af | | | |
| 1800-1830 | BBC London | 3255af | 3955eu | 5975as | 6180eu |
| | | 6190af | 6195eu | 7160me | 7325af |
| | | 9410eu | 9600af | 9740me | 11750as |
| | | 12095eu | 15070eu | 15310as | 15400af |
| | | 17640eu | 17880af | | |
| 1800-1900 | BBS Bahrain | 6010me | | | |
| 1800-1900 | BSKSA Saudi Arabia | 9705eu | 9720eu | | |
| 1800-1900 | Cameroon Radio-TV | 4850do | | | |
| 1800-1900 | CFCX Montreal | 6005do | | | |
| 1800-1900 | CFRX Toronto | 6070do | | | |
| 1800-1900 | CSM World Svc, Boston | 13625as | 15610am | 17555am | 21545af |
| | | 21640af | | | |
| 1800-1815 | Kol Israel | 11587eu | 11675na | 15550na | 17575af |
| | | 17630va | 17685va | | |
| 1800-1900 | KTBN Salt Lake City | 15590 | | | |
| 1800-1810 | Malawi B'casting Corp. | 3381do | | | |
| 1800-1900 | R. E. Africa, Eq. Guinea | 7190af | | | |
| 1800-1900 | R. for Peace Int'l | 13660 2 | 21566 2 | 25945am | |
| 1800-1900 | Radio 1, Accra, Ghana | 4915do | | | |
| 1800-1900 | Radio 2, Accra, Ghana | 7295do | | | |
| 1800-1900 | Radio Australia | 5995va | 6060va | 6080va | 7240va |
| | | 9580va | 9860va | 11910va | |
| 1800-1840 w | Radio Bertoua, Cameroon | | 4750do | | |
| 1800-1830 | Radio Cairo | 15255af | | | |
| 1800-1830 | Radio Canada Int'l | 13670af | 15260af | 17820af | |
| 1800-1845 mtwhfa | Radio Douala, Cameroon | 4795do | | | |
| 1800-1900 | Radio Ivory Coast, Abidjan | 11920af | | | |
| 1800-1900 | Radio Korea | 15575eu | | | |
| 1800-1900 | Radio Moscow | 6065va | 11655va | 11765va | 11840na |
| | | 11850va | 11900va | 11995va | 12050va |
| | | 15230va | 15330va | 15335va | 15375va |
| | | 15415va | 15520va | 15535va | 15540va |
| | | 15595va | 17600va | 17655va | 17670va |
| | | 21585va | 21740va | 21750va | 21845va |
| | | 3265af | 4855af | 9618af | |
| 1800-1900 | Radio Mozambique | 15120pa | | | |
| 1800-1900 | Radio New Zealand Int'l | 3326do | 4990do | | |
| 1800-1900 | Radio Nigeria | 17755na | | | |
| 1800-1830 as | Radio Norway | 21455pa | | | |
| 1800-1900 | Radio Pilipinas, Manila | 6065va | 9655va | 11900va | |
| 1800-1830 | Radio Sweden | 5985af | 9684af | 11765af | |
| 1800-1900 | Radio Tanzania | 9505af | 11880af | 17895af | |
| 1800-1900 | Radio Zambia Int'l | 15265eu | | | |
| 1800-1900 | Radiobras, Brasilia | 3265af | 4765af | | |
| 1800-1830 | RTV Congolaise | 3316do | | | |
| 1800-1900 | SLBS, Sierra Leone | 3200af | 9600af | | |
| 1800-1845 | TWR Swaziland | 21705eu | | | |
| 1800-1900 | VOA Europe | 3980eu | 6040va | 9700va | 9760va |
| 1800-1900 | Voice of America | 11760eu | 15205eu | 15245eu | |
| | | 9575af | 11920af | 15410af | 15580af |
| | | 17800af | 21625af | | |
| 1800-1900 | Voice of Ethiopia | 9662af | | | |
| 1800-1900 mtwhf | Voice of Kenya | 4935do | | | |
| 1800-1830 | Voice of Vietnam | 9840eu | 12020eu | 15010eu | |
| 1800-1900 | WHRI Noblesville | 13760na | 15105sa | | |
| 1800-1900 | WMLK Bethel | 9465eu | | | |
| 1800-1900 | WRNO New Orleans | 15420na | | | |
| 1800-1900 | WWCR Nashville | 15690na | | | |
| 1800-1900 | WYFR Okeechobee | 21500na | | | |
| 1815-1900 | Radio Bangladesh | 12030as | 15255as | | |
| 1815-1830 | Radio Voice of Lebanon | 5me | 6549.5 | | |
| 1830-1900 | BBC London | 3255af | 3955eu | 6005af | 6180eu |
| | | 6190af | 6195eu | 7325eu | 9410eu |
| | | 9600af | 11750as | 12095eu | 15070eu |
| | | 15400af | 17880af | | |

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|------------------|---------------------------|---------------------------------|
| 1830-1900 | BRT Brussels | 21815af |
| 1830-1900 | Radio Afghanistan | 7310eu 9635eu |
| 1830-1900 as | Radio Canada Int'l | 15260eu 17820eu |
| 1830-1900 | Radio Finland | 6120eu 9550eu 11755eu 15185eu |
| 1830-1900 | Radio Netherlands | 6020af 15570af 17605af 21685af |
| 1830-1855 | Radio Polonia, Warsaw | 5995eu 6135eu 7285eu |
| 1830-1900 | Radio Sofia, Bulgaria | 11660eu 11720eu 11765af 15330eu |
| | 17780af 17825af | |
| 1830-1900 | Radio Sweden | 6065va 15270va |
| 1830-1900 | Sri Lanka B'casting Corp. | 9720eu 15120eu |
| 1830-1900 | Swiss Radio Int'l | 9885af 11955af |
| 1830-1900 | VOIRI, Teheran, Iran | 6035eu 9022eu |
| 1840-1850 mtwhfa | R National de Venezuela | 9540om |
| 1840-1850 | Voice of Greece | 11645af 15650af |
| 1845-1900 | Ghana B'casting Corp. | 6130af |
| 1845-1900 | RTV Guinea | 4900af 7125af |
| 1845-1900 s | RTV Mali | 4783do 5995do 7285do 11960do |
| 1845-1900 | TWR Swaziland | 3200af |



This painting reproduction depicts one of the peaks of the famous Lushan Mountains near Jiujiang, Jiangxi Province. The artist, Li Zhenping, is a retired staff member of Radio Beijing.

[3:00 PM EDT/12:00 PM PDT]

| | | | | | | |
|------------------|--------------------------|---------|---------|---------|---------|--|
| 1900-2000 | All India Radio, Delhi | 11935af | | | | |
| 1900-1930 | BBC London | 3255af | 3955eu | 6005af | 6180eu | |
| | | 6190af | 6195eu | 7160me | 7325eu | |
| | | 9410eu | 9600af | 9630af | 11750pa | |
| | | 12095eu | 15070eu | 15400af | 17880af | |
| 1900-2000 | BBS Bahrain | 6010me | | | | |
| 1900-2000 | BSKSA, Saudi Arabia | 9705eu | 9720eu | | | |
| 1900-1945 | Cameroon Radio-TV | 4850na | | | | |
| 1900-2000 | CFCX Montreal | 6005do | | | | |
| 1900-2000 | CFRX Toronto | 6070do | | | | |
| 1900-2000 | CSM World Svc, Boston | 13625as | 17555am | 21545af | 21640af | |
| | | 21780am | | | | |
| 1900-1950 | Deutsche Welle | 9760af | 11785af | 11810af | 13790af | |
| | | 15350af | 15390af | 17810af | | |
| 1900-2000 | Ghana B'casting Corp. | 6130af | | | | |
| 1900-2000 | HCJB Quito | 15270eu | 17790eu | 21455eu | 21480eu | |
| | | 29590eu | | | | |
| 1900-2000 | KTCN Salt Lake City | 15590 | | | | |
| 1900-2000 | R. E. Africa, Eq. Guinea | 7190af | | | | |
| 1900-2000 | R. for Peace Int'l | 13660 2 | 21566 2 | 25945am | | |
| 1900-2000 | Radio 1, Accra, Ghana | 4915do | | | | |
| 1900-2000 | Radio 2, Accra, Ghana | 7295do | | | | |
| 1900-2000 | Radio Algiers | 9510me | 9535me | | | |
| 1900-2000 | Radio Australia | 5995va | 6060va | 6080va | 7240va | |
| | | 9580va | 9860va | 11910va | 12000va | |
| | | 13605va | 13745va | | | |
| 1900-2000 | Radio Beijing | 9440af | 11515af | | | |
| 1900-1930 | Radio Canada Int'l | 5995eu | 7235eu | 13650eu | 15325eu | |
| | | 17875eu | 21675eu | | | |
| 1900-1930 mtwhf | Radio Canada Int'l | 13670af | 15260af | 17820af | | |
| 1900-2000 | Radio Havana Cuba | 17705eu | | | | |
| 1900-2000 | Radio Moscow | 7305va | 11630va | 11765va | 11840na | |
| | | 11890va | 13605va | 15185va | 15330va | |
| | | 15375va | 15540va | 15560va | 15580va | |
| | | 1555va | 17670va | 17695va | | |
| 1900-1925 | Radio Netherlands | 6020af | 15570af | 17605af | 21685af | |
| 1900-2000 smtwhf | Radio New Zealand Int'l | 15120pa | | | | |
| 1900-2000 | Radio Nigeria | 3326do | 4990do | | | |
| 1900-1930 as | Radio Norway | 15175eu | 17750pa | | | |
| 1900-2000 | Radio Sofia, Bulgaria | 11660eu | 11720eu | 11765af | 15330eu | |
| | | 17780af | 17825af | | | |
| 1900-1915 | Radio Tanzania | 5985af | 9684af | 11765af | | |

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|-----------------|---------------------------|---------|---------|---------|---------|
| 1900-2000 | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| 1900-2000 | RAE Buenos Aires | 15345eu | | | |
| 1900-2000 s | RTV Morocco | 15335af | | | |
| 1900-2000 | SLBS, Sierra Leone | 3316do | | | |
| 1900-2000 | Spanish Foreign Radio | 9875eu | 11790eu | 15375af | 15395eu |
| 1900-2000 | Sri Lanka B'casting Corp. | 9720eu | 15120eu | | |
| 1900-2000 | TWR Swaziland | 3200af | 3240af | | |
| 1900-2000 | VOA Europe | 21705 | | | |
| 1900-2000 | Voice of America | 3980eu | 6040va | 9525as | 9700va |
| | | 9760va | 11760va | 11870as | 15180as |
| | | 15205va | 15245as | | |
| 1900-2000 | Voice of America | 9575af | 11920af | 15410af | 15580af |
| | | 17800af | 21625af | | |
| 1900-2000 mtwhf | Voice of Kenya | 4935do | | | |
| 1900-2000 | Voice of Nigeria | 7255af | | | |
| 1900-1930 | Voice of Vietnam | 9840eu | 12020eu | 15010eu | |
| 1900-1930 | VOIRI, Teheran, Iran | 6035va | 9022va | | |
| 1900-2000 | WHRI Noblesville | 13760 | 17830 | | |
| 1900-2000 | WMLK Bethel | 9465eu | | | |
| 1900-2000 | WRNO New Orleans | 15420 | | | |
| 1900-2000 | WWCR Nashville | 15690 | | | |
| 1900-2000 | WYFR Okeechobee | 15355af | 21615eu | | |
| 1910-1915 | Radio Botswana | 3356af | | | |
| 1920-1930 | Radio Buea, Cameroon | 3970do | | | |
| 1920-1930 | Voice of Greece | 7430 | 9395 | | |
| 1930-2000 | BBC London | 3255af | 3955eu | 6005af | 6180eu |
| | | 6190af | 6195eu | 7160me | 7325eu |
| | | 9410eu | 9600af | 9630af | 11750pa |
| | | 12095eu | 15070eu | 15400af | 17880af |
| 1930-2000 tes | KFBS Saipan | 9475af | | | |
| 1930-1940 | Radio Austria Int'l | 5945eu | 6155eu | 12010me | 13730af |
| 1930-1940 irr | Radio Burkina Faso | 4815af | 7230af | | |
| 1930-2000 | Radio Canada Int'l | 6170eu | 9650eu | 9670eu | 13650eu |
| | | 15325eu | 17825eu | 21675eu | |
| 1930-2000 | Radio Romania Int'l | 7145eu | 9690eu | 9750eu | 11940eu |
| 1930-2000 | Radio Sweden | 6065va | 9655va | | |
| 1935-1955 | RAI, Rome | 7275eu | 9710eu | 11800eu | |
| 1935-1945 | RTV Togo | 5047af | | | |
| 1940-2000 smwha | Ulaanbaatar R., Mongolia | | 11850eu | 12015eu | |
| 1950-2000 | Sudan Nat'l B'casting Cor | | 9540do | 9550do | 11635do |
| 1950-2000 | Vatican Radio | 9645va | 11625va | 15090va | |



VOA's London News Center staff members (from left to right): Paul Francuch, Christine Furnell, Suresh Kotecha, Mike Batho, Edie Smith, Rod James, and Gil Butler.

2000 UTC

[4:00 PM EDT/1:00 PM PDT]

FREQUENCIES

| | | | | | |
|------------------|--------------------------|---------|---------|---------|---------|
| 2000-2030 | BBC London | 3255af | 3955eu | 5975eu | 6005af |
| | | 6180eu | 6190af | 6195eu | 7160me |
| | | 7180pa | 7325eu | 9410eu | 9600as |
| | | 9630af | 11750pa | 12095eu | 15070eu |
| | | 15260sa | 15340pa | 15400af | 17880af |
| 2000-2100 | BBS Bahrain | 6010me | | | |
| 2000-2100 | BSKSA, Saudi Arabia | 9705eu | 9720eu | | |
| 2000-2100 | CFCX Montreal | 6005do | | | |
| 2000-2100 | CFRX Toronto | 6070do | | | |
| 2000-2100 | CSM World Svc, Boston | 9455as | 13625pa | 13770am | 15610eu |
| | | 15665eu | 17555sa | | |
| 2000-2100 tes | KFBS Saipan | 9475af | | | |
| 2000-2100 | King of Hope, Lebanon | 6280me | | | |
| 2000-2030 | Kol Israel, Jerusalem | 11605eu | 11587eu | 15640am | 17685af |
| | | 11675af | | | |
| 2000-2100 | KTBN Salt Lake City | 15590 | | | |
| 2000-2100 | KVOH Los Angeles | 17775am | | | |
| 2000-2010 w | Malawi B'casting Corp. | 3381do | | | |
| 2000-2100 | R. E. Africa, Eq. Guinea | 7190af | | | |
| 2000-2100 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na |
| 2000-2100 | Radio 1, Accra, Ghana | 4915do | | | |
| 2000-2100 | Radio 2 Accra, Ghana | 7295do | | | |
| 2000-2100 | Radio Australia | 5995va | 6060va | 6080va | 7240va |
| | | 9860va | 11930va | 12000va | 13605va |
| | | 13745va | 17795va | | |
| 2000-2100 | Radio Beijing | 4130eu | 9920eu | 11500eu | |
| 2000-2100 | Radio Beijing | 9440af | 11715af | 15110af | |
| 2000-2030 | Radio Georgia, Tbilisi | 11760eu | | | |
| 2000-2100 | Radio Havana Cuba | 17705eu | | | |
| 2000-2100 | Radio Moscow | 1143eu | 6000va | 7330va | 11520va |
| | | 11630va | 11765va | 11840na | 11890va |
| | | 11960va | 12050va | 12060va | 13605va |
| | | 15185va | 15330va | 15500va | 15540va |
| | | 15560va | 15580va | 15595va | 17695va |
| | | 21740va | | | |
| 2000-2100 smtwhf | Radio New Zealand Int'l | 15120pa | | | |
| 2000-2100 | Radio Nigeria | 3326do | 4990do | | |
| 2000-2030 as | Radio Norway | 15165na | | | |
| 2000-2030 | Radio Polonia, Warsaw | 9525eu | 11840eu | | |
| 2000-2030 mtwhf | Radio Portugal | 11740eu | | | |

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|------------------|--------------------------|---------|---------|---------|---------|
| 2000-2100 | Radio Pyongyang | 9345va | 9640va | 9977va | |
| 2000-2030 | Radio Romania Int'l | 7145eu | 9690eu | 9750eu | 11940eu |
| 2000-2100 s | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| 2000-2100 | SLBS, Sierra Leone | 3316do | | | |
| 2000-2030 | Swiss Radio Int'l | 3985eu | 6165eu | 9535eu | |
| 2000-2100 | TWR Swaziland | 3200af | 3240af | | |
| 2000-2010 smwha | Ulaanbaatar R., Mongolia | | 11850eu | 12015eu | |
| 2000-2100 | Voice of America | 3980eu | 6040va | 9700va | 9760va |
| | | 11760va | 15205va | 15245va | |
| 2000-2100 | Voice of America | 9570af | 15410af | 15580af | 17800af |
| | | 21485af | 21625af | | |
| 2000-2100 | Voice of Indonesia | 7125as | 9675as | 11752as | 11785as |
| 2000-2010 mtwhf | Voice of Kenya | 4935do | | | |
| 2000-2030 | Voice of Nigeria | 7255af | | | |
| 2000-2100 | WHRI Noblesville | 13760af | 15105sa | | |
| 2000-2100 | WRNO New Orleans | 15420 | | | |
| 2000-2100 | WWCR Nashville | 15690 | | | |
| 2000-2100 | WYFR Okeechobee | 15566eu | 17612af | 21525eu | 21615eu |
| 2005-2100 | Radio Damascus | 12085na | 15095na | | |
| 2010-2100 sa | Voice of Kenya | 4935do | | | |
| 2015-2030 | V. de la Rev., Benin | 4870af | 5025af | | |
| 2015-2045 sth | V. of the Black Cockerel | 9700af | | | |
| 2020-2030 mtwhfa | Voice of Greece | 9395eu | 11645eu | | |
| 2025-2045 | RAI, Rome | 7235me | 9575me | 11800me | |
| 2030-2100 | BBC London | 3255af | 3955eu | 5975ca | 6005af |
| | | 6180eu | 6190af | 6195eu | 7180pa |
| | | 7325eu | 9410eu | 11750pa | 12095eu |
| | | 15070eu | 15260sa | 15340pa | 15400af |
| 2030-2100 | Radio Cairo | 15375af | | | |
| 2030-2100 | Radio Korea | 6480eu | 7550af | 15575eu | |
| 2030-2100 | Radio Netherlands | 7285af | 9860af | 9895af | 11660af |
| | | 13700af | | | |
| 2030-2100 | Radio Sweden | 6065na | | | |
| 2030-2100 | Radio Tallin, Estonia | 5925eu | 9560eu | | |
| 2030-2100 | Voice of Vietnam | 9840eu | 12020eu | 15010eu | |
| 2045-2100 | All India Radio, Delhi | 7412eu | 9665eu | 9910eu | 11620eu |
| | | 11715eu | 15265eu | | |
| 2045-2100 | Radio Sofia, Bulgaria | 11765eu | 17780af | 17825af | |
| 2050-2100 | Vatican Radio | 6248eu | 7250eu | | |

Monitoring Post Pin-Up

Karl Holt, Delhi NY, shows us his radio shack which includes his prize radio, a Zenith Royal 1000D Trans-Oceanic.



2100 UTC

[5:00 PM EDT/2:00 PM PDT]

FREQUENCIES

| | | |
|-----------|--------------------------|---|
| 2100-2130 | BBC London | 6195as 5975ca 6005af 3255af 3955eu 6180eu 15340pa 11750pa 12095eu 15070na 15260sa 15400af 9590na 9410eu 7325eu |
| 2100-2106 | BBS Bahrain | 6010me |
| 2100-2200 | CFCX Montreal | 6005do |
| 2100-2200 | CFRX Toronto | 6070do |
| 2100-2200 | CSM World Svc, Boston | 9455as 13625pa 13770am 15610eu 15665eu 17555sa |
| 2100-2150 | Deutsche Welle | 9760as 9765as 11785as 13780as 15350as 15360as |
| 2100-2130 | King of Hope, Lebanon | 6280me |
| 2100-2200 | KTBN Salt Lake City | 15590 |
| 2100-2200 | KVOH Los Angeles | 17775 |
| 2100-2110 | Malawi B'casting Corp. | 3381do |
| 2100-2200 | R. E. Africa, Eq. Guinea | 7190af |
| 2100-2200 | R. for Peace Int'l | 7375na 13630na 15030na 21465na |
| 2100-2200 | R. Nacional de Angola | 3355af 9535af |
| 2100-2200 | Radio 1, Accra, Ghana | 4915do |
| 2100-2200 | Radio 2, Accra, Ghana | 7295do |
| 2100-2200 | Radio Australia | 6060va 11880va 11930va 13705va 15160va 15240va 15320va 17715va 17795va 21740va |
| 2100-2200 | Radio Beijing | 4130eu 9920eu 11500eu 3985eu |
| 2100-2200 | Radio Budapest | 6110eu 9835eu 11910eu |

| | | |
|------------------|---------------------------|--|
| 2100-2200 | Radio Cairo | 15375af |
| 2100-2130 | Radio Canada Int'l | 5995eu 7235eu 13650eu |
| 2100-2200 | Radio Canada Int'l | 15325eu 17875eu |
| 2100-2105 | Radio Damascus | 12085na 15095na |
| 2100-2200 | Radio Japan | 11815me 15230eu 15270eu 17810as 17890as |
| 2100-2130 | Radio Korea | 6480eu 7550af 15575eu |
| 2100-2200 | Radio Moscow | 1143eu 1494eu 7300va 7330va 9740va 9800va 11520va 11630va 11675va 11685va 11745va 11840na 11850va 11890va 12050va 12060va 15130va 15355va 15385va 15455va 15500va 15535va 15560va 15580va 15595va 17655va 17735va 21565va 21630va |
| 2100-2125 | Radio Netherlands | 7285af 9860af 9895af 11660af 13700af |
| 2100-2200 | Radio New Zealand Int'l | 15120pa |
| 2100-2200 | Radio Nigeria | 3326do 4990do |
| 2100-2130 mtwhf | Radio Portugal | 15250eu |
| 2100-2130 | Radio Romania Int'l | 7145eu 9690eu 9750eu 11810eu 11940eu |
| 2100-2130 | Radio Sofia, Bulgaria | 11765eu 17780af 17825af |
| 2100-2200 | Radio Zambia Int'l | 9505af 11880af 17895af |
| 2100-2200 | SLBC Sri Lanka | 15120as |
| 2100-2200 | SLBS, Sierra Leone | 3316do |
| 2100-2200 | Spanish Foreign Radio | 9875af |
| 2100-2130 | Swiss Radio Int'l | 12035af 13635af 15525af |
| 2100-2130 | Swiss Radio Int'l | 3985eu 6165eu 9535eu 9885eu |
| 2100-2115 | TWR Swaziland | 3240af |
| 2100-2110 | Vatican Radio | 6248eu 7250eu |
| 2100-2130 | Vatican Radio | 17710af 17730af 21650af |
| 2100-2200 | Voice of America | 3980eu 6040va 9700va 9760va 11760va 11870as 11960va 15185as 15205va 15245as 17735as |
| 2100-2200 | Voice of America | 15410af 15580af 17800af 21485af 21625af |
| 2100-2200 | Voice of Turkey | 9795eu |
| 2100-2200 | WHRI Noblesville | 13760 17830 |
| 2100-2200 | WRNO New Orleans | 15420 |
| 2100-2200 | WWCR Nashville | 15690 |
| 2100-2200 | WYFR Okeechobee | 15566af 17612af 21525eu 21615eu |
| 2110-2200 | Radio Damascus | 12085na 15095na |
| 2115-2130 mtwhf | BBC London Caribbean Rpt. | 17715ca |
| 2115-2130 s | R. Republik Indonesia | 6070do |
| 2115-2200 | Radio Cairo | 9900eu |
| 2130-2200 | BBC London | 3255af 3955eu 5975ca 6005af 6180eu 6195as 7325eu 9410eu 9590na 11750pa 12095eu 15070na 15260sa 15340pa 15400af |
| 2130-2200 | BBC London Falkland Is Sv | 13660sa |
| 2130-2200 | HCJB Quito | 17790eu 21455eu 21480eu 25950eu |
| 2130-2200 smtwhf | King of Hope, Lebanon | 6280me |
| 2130-2200 | R. Alma Ata, Kazakhstan | 3955as 4400as 5035as 5260as 5960as 5970as 9505as 15215as 15315as 15385as 17605as 17715as 17730as |
| 2130-2145 | Radio Buea, Cameroon | 3970do |
| 2130-2200 | Radio Canada Int'l | 11880af 15150af 17820af |
| 2130-2200 | Radio Finland | 6120eu 11755eu |
| 2130-2200 | Radio Tirana | 9580eu 11825eu |
| 2140-2150 mtwhf | R Nacional de Venezuela | 9540 |
| 2145-2200 | Cameroon Radio-TV | 4850na |



John Flake, Charlotte, NC, received this QSL from Radio Korea.

2200 UTC

[6:00 PM EDT/3:00 PM PDT]

FREQUENCIES

| | | | | | |
|------------------|---------------------------|---------|---------|---------|---------|
| 2200-2230 | All India Radio, Delhi | 7412eu | 9665eu | 9910eu | 11620eu |
| | | 11715eu | 15265eu | | |
| 2200-2300 | BBC London | 5975na | 6195as | 9410eu | 9570pa |
| | | 9590na | 9915ca | 11750sa | 11945as |
| | | 11955as | 12095na | 15070na | 15260sa |
| | | 15340as | 15400af | 17830as | |
| 2200-2215 | Cameroon Radio-TV | 4850na | | | |
| 2200-2300 | CFCX Montreal | 6005do | | | |
| 2200-2300 | CFRX Toronto | 6070do | | | |
| 2200-2300 | CSM World Svc, Boston | 9465na | 13625as | 15300af | 15405as |
| | | 15665af | 17555sa | | |
| 2200-2230 s | KGEI San Francisco | 15280sa | | | |
| 2200-2300 | KTBN Salt Lake City | 15590 | | | |
| 2200-2300 sa | R. E. Africa, Eq. Guinea | 7190af | | | |
| 2200-2300 | R. for Peace Int'l | 13630ca | 21465ca | 15030am | |
| 2200-2300 | Radio 1, Accra, Ghana | 4915do | | | |
| 2200-2300 | Radio 2, Accra, Ghana | 7295do | | | |
| 2200-2300 | Radio Australia | 11880va | 11930va | 13705va | 15160va |
| | | 15240va | 15320va | 17715va | 17795va |
| | | 21740va | | | |
| 2200-2210 | Radio Bafoussam, Cameroon | 4000do | | | |
| 2200-2300 | Radio Beijing | 11990eu | | | |
| 2200-2245 | Radio Cairo | 9900eu | | | |
| 2200-2230 | Radio Canada Int'l | 5960na | 9755na | 11905as | 13670ca |
| 2200-2210 | Radio Damascus | 12085na | 15095na | | |
| 2200-2245 | Radio Federal Yugoslavia | 5960eu | 11735na | | |
| 2200-2300 | Radio Havana Cuba | 7215eu | | | |
| 2200-2300 | Radio Kiev | 5960eu | | | |
| 2200-2300 | Radio Moscow | 1494eu | 9800va | 11520va | 11675va |
| | | 11710na | 11985va | 12050va | 12060va |
| | | 15355va | 15425va | 15560va | 15580va |
| | | 15595va | 17655va | 21690va | |
| 2200-2300 | Radio New Zealand Int'l | 15120pa | | | |
| 2200-2300 | Radio Nigeria | 3326do | 4990do | | |
| 2200-2230 as | Radio Norway | 21705va | | | |
| 2200-2230 | Radio Prague | 5930eu | 6055eu | 7345eu | |
| 2200-2230 a | Radio Republik Indonesia | 3385do | 4805do | | |
| 2200-2230 | Radio Sweden | 6065va | | | |
| 2200-2215 | Radio Zambia Int'l | 9505af | 11880af | 17895af | |
| 2200-2225 | RAI, Rome | 5990as | 9710as | 11800as | |
| 2200-2300 smtwha | RTM Malaysia | 7295do | | | |
| 2200-2218 | RTV Congolaise | 4765do | 5985do | | |
| 2200-2300 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | |
| 2200-2300 | SLBS, Sierra Leone | 3316do | | | |
| 2200-2300 | UAE Radio Abu Dhabi | 9600na | 11965na | 13605na | |
| 2200-2300 | V. of Free China, Taiwan | 17750eu | 21720eu | | |
| 2200-2300 | Voice of America | 6095as | 7120va | 9770as | 11760as |
| | | 15185va | 15215va | 15255as | 15290as |
| | | 15305va | 17735as | 17810as | 17820as |
| | | 17885va | | | |
| 2200-2300 | WHRI Noblesville | 13760na | 17830sa | | |
| 2200-2300 | WRNO New Orleans | 13720na | | | |
| 2200-2300 | WWCR Nashville | 15690na | | | |
| 2200-2300 | WYFR Okeechobee | 17612af | 21525eu | | |
| 2205-2300 | Vatican Radio | 7125as | 9615as | 11830as | |
| 2230-2300 | Kol Israel | 9435na | 11587na | 11605na | 15100eu |
| | | 15640eu | 17575sa | | |
| 2230-2300 | Radio Polonia, Warsaw | 5995eu | 6135eu | 7270eu | 9675eu |
| 2230-2300 | Radio Vilnius, Lithuania | 6100eu | 9625eu | 9710eu | |
| 2230-2300 mwhf | RTV Congolaise | 4765do | | | |
| 2230-2300 | Swiss Radio Int'l | 6190eu | | | |
| 2240-2225 | Voice of Greece | 11645am | | | |
| 2245-2300 | Radio Sofia, Bulgaria | 11660eu | 11710na | 15110eu | 15330na |
| | | 15370eu | 17825na | | |



Do you have special QSLs, pennants, or logos from radio stations? Send them to us and we'll use them as space permits. We'll copy them and return them to you within the month. Send them to:

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c/o Monitoring Times
P.O. Box 98
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The pennant and QSL shown above were sent to us by Paul Garland, El Paso, TX.

2300 UTC

[7:00 PM EDT/4:00 PM PDT]

FREQUENCIES

| | | | | | |
|-----------|---------------------------|---------|---------|---------|---------|
| 2300-0000 | AWR Costa Rica | 9725ca | 11825ca | | |
| 2300-2330 | BBC London | 5975na | 6175na | 6195as | 7145as |
| | | 9410eu | 9570pa | 9590na | 9915sa |
| | | 11750sa | 11945as | 11955as | 12095na |
| | | 15070na | 15260sa | 15340pa | 15400af |
| 2300-2325 | BRT, Brussels | 5910eu | 9925eu | 15515af | |
| 2300-0000 | CFCX Montreal | 6005na | | | |
| 2300-0000 | CFRX Toronto | 6070do | | | |
| 2300-0000 | CSM World Svc, Boston | 9465na | 13625as | 15300af | 15405as |
| | | 15665af | 17555sa | | |
| 2300-0000 | KSDA Guam | 15610as | | | |
| 2300-0000 | KTBN Salt Lake City | 15590na | | | |
| 2300-0000 | R. for Peace Int'l | 7375na | 13630na | 15030na | 21465na |
| 2300-2305 | Radio 1, Accra, Ghana | 4915do | | | |
| 2300-2305 | Radio 2, Accra, Ghana | 7295do | | | |
| 2300-0000 | Radio Australia | 11880va | 11930va | 13605va | 15160va |
| | | 15240va | 15320va | 17715va | 17795va |
| | | 21740va | | | |
| 2300-2330 | Radio Canada Int'l | 9755na | 11730ca | 13670na | 11940ca |
| | | 15235sa | | | |
| 2300-0000 | Radio Japan | 11735eu | 11815am | 15195as | 15230am |
| | | 17810pa | 21610as | | |
| 2300-0000 | Radio Moscow NAS | 11690na | 11710na | 11780na | 11985na |
| | | 12050na | 13605na | 15140na | 15355na |
| | | 15425na | 15480na | 15550na | 15560na |
| | | 15580na | 15590na | 15595na | 16190na |
| | | 17655na | 17735na | 17850na | 17890na |
| | | 21690na | | | |
| 2300-0000 | Radio New Zealand Int'l | 15120pa | | | |
| 2300-0000 | Radio Orion, South Africa | | 4810af | | |

| | | | | | |
|-----------|------------------------|---------|---------|---------|---------|
| 2300-0000 | Radio Pyongyang | 11700na | 13650na | | |
| 2300-0000 | Radio Sofia, Bulgaria | 11660eu | 11710na | 15110eu | 15330na |
| | | 15370eu | 17825na | | |
| 2300-0000 | Radio Thailand | 4830as | 9655as | 11905as | |
| 2300-0000 | smtwha RTM Malaysia | 7295do | | | |
| 2300-0000 | SBC Radio 1, Singapore | 5010do | 5052do | 11940do | |
| 2300-0000 | SLBS, Sierra Leone | 3316do | | | |
| 2300-0000 | UAE Radio, Abu Dhabi | 9600na | 11965na | 13605na | |
| 2300-2330 | Vatican Radio | 6185eu | | | |
| 2300-0000 | Voice of America | 7120as | 9530va | 9770as | 11760as |
| | | 11905va | 11960va | 15185as | 15225va |
| | | 15290as | 15305as | 15445va | 17735as |
| | | 17820as | 17885va | | |
| 2300-0000 | Voice of Turkey | 7225eu | 9445na | 9685eu | 17880as |
| 2300-0000 | WHRI Noblesville | 9495na | 13760sa | | |
| 2300-0000 | WRNO New Orleans | 13720na | | | |
| 2300-0000 | WWCR Nashville | 15690na | | | |
| 2300-0000 | WYFR Okeechobee | 5985na | 11915na | | |
| 2305-2355 | Radio Polonia | 5995eu | 7270eu | | |
| 2315-0000 | All India Radio, Delhi | 9535as | 9910as | 11715as | 11745as |
| | | 15110as | | | |
| 2330-0000 | BBC London | 5975na | 6175na | 6195as | 7145as |
| | | 9570pa | 9590na | 9915sa | 11750sa |
| | | 11945as | 11955na | 12095na | 15070na |
| | | 15260sa | 17830as | | |
| 2330-0000 | Radio Canada Int'l | 5960na | 9755na | 13670na | |
| 2330-0000 | Radio Sweden | 9695la | 11705la | | |
| 2330-0000 | Voice of Vietnam | 9840as | 12020as | 15010as | |

SELECTED PROGRAMS

Sundays

2305 BBC: World Business Review. See S 0530.
2313 Radio Australia: Sports Report. See S 1313.
2315 BBC: Letter From America. See S 0545.
2330 BBC: Feature. See S 1401.
2330 Radio Australia: Business Report. A look at the day's business developments.

Mondays

2305 BBC: World Business Report. The latest news from the markets worldwide.

2313 Radio Australia: Sports Report. See S 1313.

2315 BBC: Talks. "Science Or Fiction?" explores the realm where science ends and fantasy begins (7th); "Mediawatch" samples the media and communications field (through December 30th).

2330 BBC: Multitrack 1: Top 20. Tim Smith presents the smash singles on the UK pop music charts.

2330 Radio Australia: Business Report. See S 2330.

Tuesdays

2305 BBC: World Business Report. See M 2305.
2313 Radio Australia: Sports Report. See S 1313.
2315 BBC: Concert Hall. See S 1515.
2330 Radio Australia: Business Report. See S 2330.

Wednesdays

2305 BBC: World Business Report. See M 2305.
2313 Radio Australia: Sports Report. See S 1313.



Harold Smith presents "American Magazine" on the English service of KNLS.

2315 BBC: Good Books. See W 1445.
2330 BBC: Multitrack 2. Graham Bannerman presents
new pop records, interviews, news, and contests.
2330 Radio Australia: Business Report. See S 2330.

Thursdays

2305 BBC: World Business Report. See M 2305.
2313 Radio Australia: Sports Report. See S 1313.
2315 BBC: Music Review. News and views from the world of classical music.
2330 Radio Australia: Business Report. See S 2330.

Fridays

2305 BBC: World Business Report. See M 2305.
2313 Radio Australia: Music/Information. See S 0330.
2315 BBC: Worldbrief. A roundup of the week's news headlines and developments.
2330 BBC: Multitrack 3. News and releases from the British alternative music scene.

Saturdays

2305 BBC: Words Of Faith. See S 0540.
2310 BBC: Book Choice. See H 0140.
2313 Radio Australia: Back Page. See S 0310.
2315 BBC: A Jolly Good Show. See T 1515.
2330 Radio Australia: At Your Request. See S 0130.

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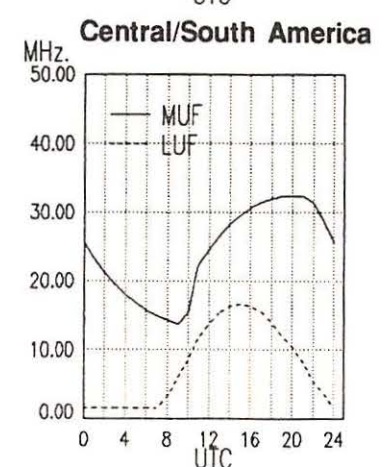
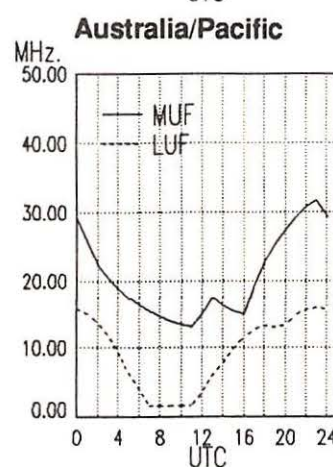
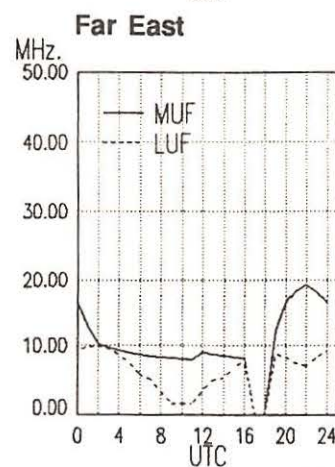
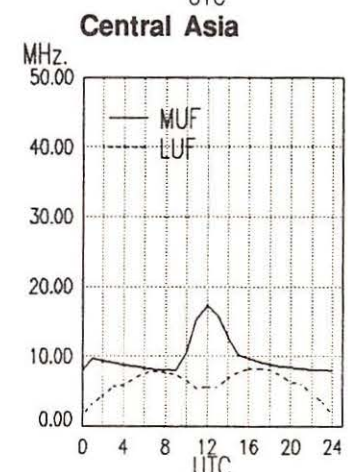
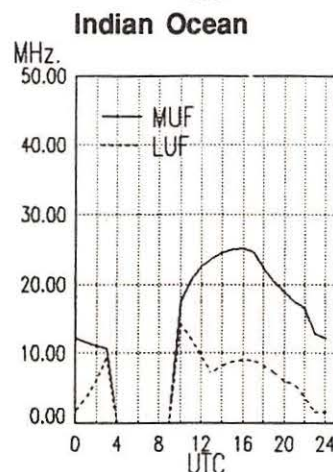
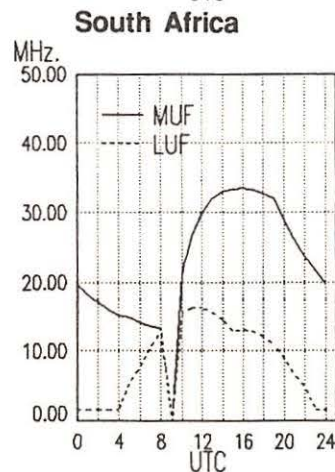
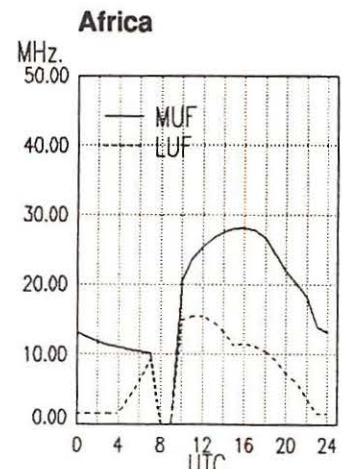
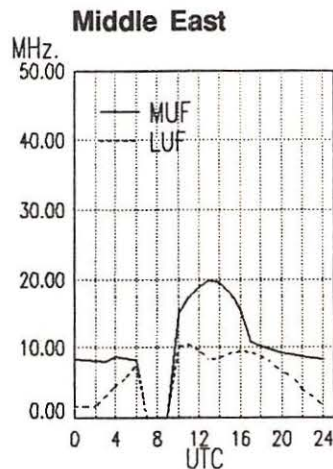
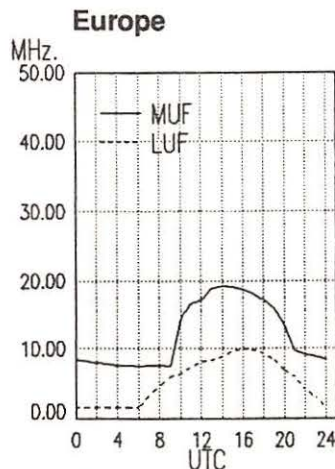
shortwave guide

How to use the propagation charts

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location.

Then look for the one most closely describing the geographic location of the station you want to hear.

Conditions for areas EAST of the Mississippi and ...

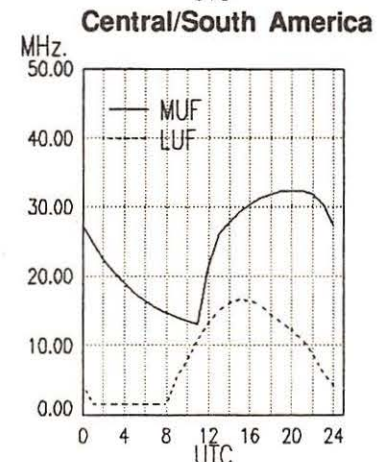
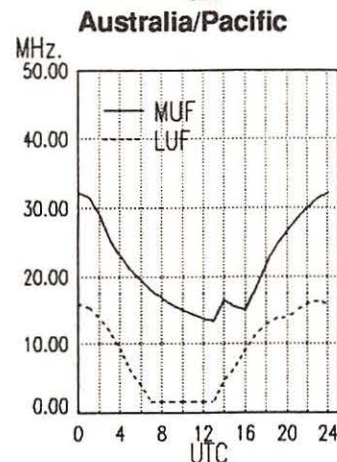
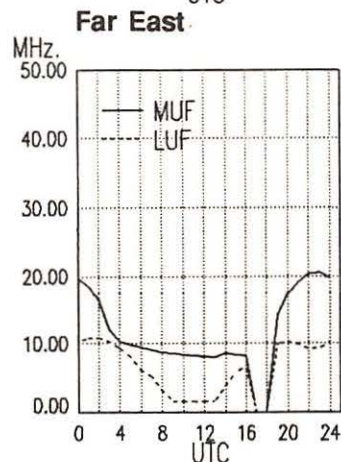
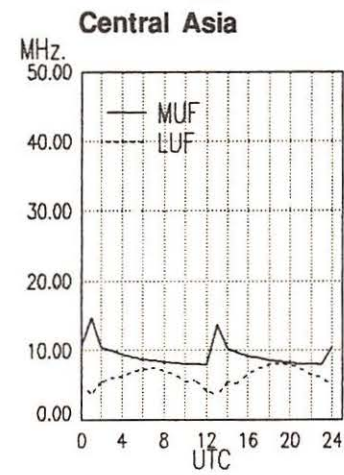
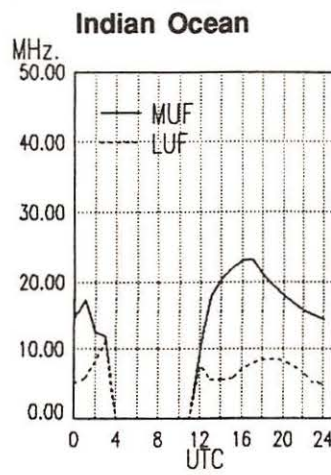
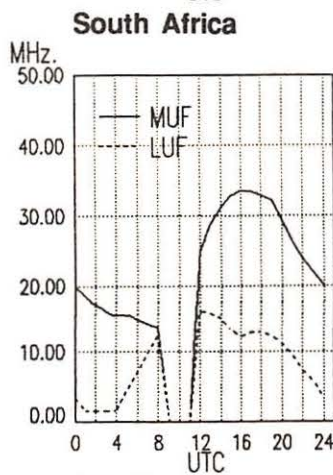
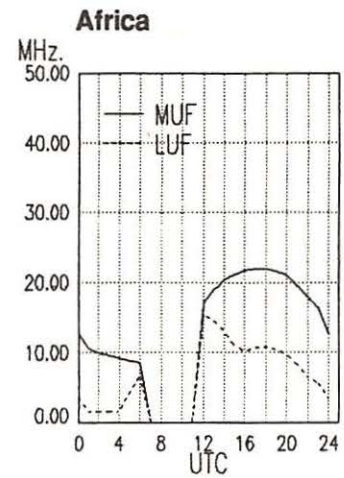
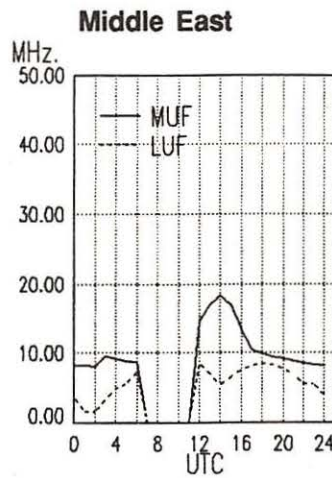
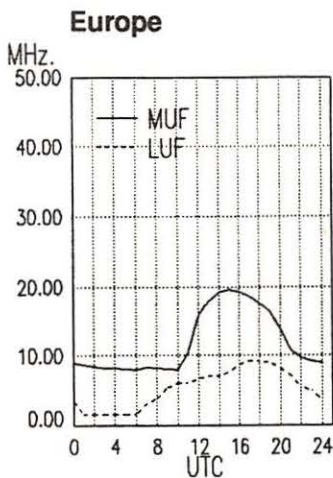


shortwave guide

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Usable Frequency (MUF) and the lower line the Lowest Usable Frequency (LUF) as indicated on the vertical axis of the graph. The strongest signals will be near the MUF.

While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good Luck!

Conditions for areas WEST of the Mississippi and ...



HOT DX: Japan Radio's NRD-535D



Here's the snazziest-looking communications receiver you're likely to come across, and it's loaded with all sorts of practical features: a two-level noise blanker and level control, all-mode squelch, tunable notch filter, passband shift control, variable bandwidth control (narrow bandwidth only), RF gain control, and a bright, colorful fluorescent display.

Exacting Tuning and Frequency Readout

Tuning is in ultra-exacting 1 Hz increments, while the frequency reads out to the nearest 10 Hz. That readout is quite accurate, but can be improved by the addition of an optional CGD-135 high-stability crystal oscillator accessory.

Excellent Ergonomics for DXing

Ergonomically, the '535 is among the best models we've laid our hands on, especially for DX bandscanning. Much of that ergonomic excellence results from the controls and how they operate. For example, all 200 presets may be tuned as VFOs (i.e., they can be fine tuned by the main tuning dial), and they store just about everything, including mode.

The only significant design gaffe is that the NRD-535's clock doesn't display separately from the frequency readout, even though if you cut a jumper wire on one of the circuit boards it displays seconds numerically—a plus for snaring station IDs exactly at the hour.

Superb Performance

Performance is world class. The '535 is unusually adept at pulling in tough DX, in part because internal receiver noise is low. Other laboratory measurements show this to be a first-rate receiver, as well. As with the R8, there are no lapses in performance engineering. It's a top-notch receiver in virtually every respect.

Take the AGC. One of the biggest bugaboos in tuning tropical DX is thunderstorm static. On the '535, the AGC can be switched off, which keeps it from desensitizing the signal during static bursts.

Synchronous Detection Included

In North America, the only version sold is that with "ECSS" synchronous selectable sideband, which reduces fading distortion. It works

reasonably well, although it's not equal to that on the R8.

For example, the '535's passband shift moves the passband of the receiver away from center frequency to avoid adjacent-channel interference. Problem is, if the passband is shifted too far, the '535's synchronous circuitry loses lock. That tends to defeat the synchronous detector's potential for expanding the amount of high audio frequencies that can be heard while keeping the receiver relatively free from interference.

Bandwidths to Be Improved

The R8 excels in bandwidths—four audio bandwidth filters, in all—but initial samples of the '535 had only two for the AM mode used by shortwave broadcasters. The wider filter was a whopping, essentially useless, 10.5 kHz, with the narrower being 2.3 kHz, useful only when there's a great deal of interference. This shortcoming made the '535 a disappointing performer, indeed.

However, later samples have been improved to have a wide bandwidth of only 5.8 kHz—much better. And Japan Radio tells us that by the time you read this that the 5.8 kHz bandwidth

will be continuously variable from 5.8-2.3 kHz. The narrow bandwidth is already variable from 2.3-0.5 kHz, and is scheduled to remain so in the new version. If you purchased an older version, contact Japan Radio and they will give you the necessary user-installable parts to upgrade to the latest standard—a commendable practice we wish more manufacturers would follow.

Audio Quality Improved

The '535's audio quality is not equal to that of the R8, but it is clearly much better than that of the earlier Japan Radio models NRD-525 or NRD-515. This is a plus, not just for pleasant listening to programs, but also for DXing, and is yet another reason why the '535 outclasses the '525 as a DX machine. Simply put, you can make out more station IDs with the '535 than with the '525.

The '535 is also right at the top in terms of construction quality. And fixing it is usually a snap: Remove the defective plug-in circuit board (Japan Radio can tell you which) and simply swap it for a new one.

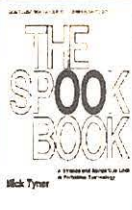
If that sounds very much like the way computers are, you're right. And in that vein, computer buffs will delight in the '535's ability to be controlled by computer. Not only can you do a great deal working from the set's instruction manual, if you're into programming, you can also purchase any of a growing number of off-the-shelf software packages designed to interface the '535 to a number of types of PCs.

Bottom Line: A Winner

Overall, the \$1,995 NRD-535 is clearly a winner. Its DX performance is fully equal to that of the R8, but its ergonomics are much more in tune with the needs of serious DXers. The Drake, on the other hand, is the best-sounding receiver on the market and costs less.



PASSPORT'S "RDI White Paper" equipment reports contain virtually everything found during IBS' exhaustive tests of premium receivers and antennas. These reports are available in the U.S. from Universal Shortwave, EEB and DX Radio Supply; in Canada from PIF, C.P. 232, L.d.R., Laval PQ H7N 4Z9; in Europe from Interbooks, 8 Abbot Street, Perth PH2 0EB, Scotland; in the U.K. from Lowe Electronics stores; and in Japan from IBS-Japan, 5-31-6 Tamanawa, Kamakura 247. For a complete list, send a self-addressed stamped envelope to RDI White Papers, Box 300M, Penn's Park PA 18943 USA.



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AOR AR2800 Scanner

AOR's newest release is the AR2800, a compact desktop/mobile scanner with wide frequency coverage and multimode reception.

About the size of a mobile CB radio, the '2800 measures 6"W x 2-1/2"H x 8-1/2"D (including knobs) and is a flyweight 19 ounces. A bottom-mounted speaker encourages under-the-dash mobile installation.

Power is provided by a 12 volt wall adaptor (included) or the vehicle battery; a DC cord and mounting bracket are provided, as are an attachable whip and a wire tilt bracket for desktop use.

Frequency coverage is a wide 500 kHz-600 MHz and 800-1300 MHz with selection of wide FM, narrow FM, AM and SSB modes. A front panel BFO (coarse and fine tuning knobs) allows adjustment of SSB signals to intelligibility.

The unit exhibits high sensitivity, typically 0.35 microvolts (12 dB SINAD—signal to noise and distortion) on VHF (NFM) and 1 microvolt AM (10 dB SINAD). A front panel cluster of 33 keys, switches and controls avoids the necessity of confusing dual-function keys.

Up to ten separate search ranges allow automatic hunting for active frequencies. Memory locations are permanent (non-volatile RAM) and require no replaceable batteries. Ten 100-channel banks provide 1000 memory locations.

Any channel may be selected for priority monitoring, and a backlit LCD has 21 annunciators to alert users as to the status of the scanner's various functions. A rear-panel AF squelch lets the scanner skip over signals which have no modulation.

A lockout function permits the user to temporarily omit any channel(s), or even banks of channels, from the scan sequence. The lockout feature may be used during the search sequence to eliminate up to 100 undesired frequencies from stopping the search.

A hold/delay key may be used to hold the search sequence from continuing in order to monitor a search-stopped frequency, or as an all-channel delay during the scan sequence.

The tuning knob incrementally selects frequencies or memory channels. Any tuning increment from 5 to 955 kHz (divisible by 5 or 12.5) may be selected.

A five-segment LED bargraph shows relative signal strengths. The antenna connector is the preferred BNC type.



Our Impressions

The AR2800 is a highly compact, lightweight, full-featured scanner at an affordable price. It offers considerable receiving flexibility unavailable elsewhere under \$900.

But the wealth of functions is tempered by the scanner's mediocre performance. We found a myriad shortcomings along with its many offerings.

"Birdies" are severe; these self-generated oscillations were found all through the spectrum, many blocking reception on our favorite frequencies.

One "wandering birdie" in the 151 MHz range was reminiscent of earlier AOR products that were plagued by unstable oscillations that drifted unpredictably, blocking reception for several seconds on a channel until it moved to another. In the earlier product, it was cured by judicious aftermarket engineering.

Multiplex noise, an annoying buzz sound generated by the microprocessor, could be heard on many ranges in the AM mode, often at very high levels. An external antenna didn't help.

The plastic cabinet affords no shielding; many signals were clearly receivable with no antenna connected whatsoever.

The LCD has poor visibility and low-level backlighting, making it hard to see in normal conditions, especially looking down from overhead.

On single sideband, the BFO (not a product detector) drifts continuously, requiring frequent

readjustment. The drift problem decreases somewhat as the radio's temperature stabilizes over time.

In most ranges, entering a new frequency defaults the tuning to 12.5 kHz, a little-used step. If you attempt to reset to 5 kHz while the dial shows a 12.5 kHz offset frequency, it will lock up and you have to re-enter your receive frequency.

A 100-channel memory bank filled with active frequencies means that one complete scan could take several minutes—or hours. And there are ten such banks. 20 channels per bank are about all that are practical, otherwise listeners miss an enormous amount of critical traffic.

Since the 2800 is basically a VHF/UHF scanner with extended frequency coverage, selectivity on shortwave is terrible, with reception affected by strong signals far from the tuned frequency.

One may wonder if the front panel was designed by myopic midgets. Teensy, concentric tuning knobs, extra-small pushbuttons and micro-miniature slide switches are awkward for normal-size fingers to use, and printed legends less than 1/16" in height are extremely difficult to read.

In order to improve access to the display and controls, and better hear the two-inch, bottom-mounted speaker on a tabletop, the unit is tilted by an ill-fitted wire bracket which fell off repeatedly when we attempted to hold down the cabinet to keep it from skidding when we pushed the buttons.

SCORPIO

ID[Sta]:GKY6 (PORTISHEAD RADIO) Location: England
 Date: 02-27-91 Begin Prg: 03:17:35 End Prg: Freq: 17.220.00
 Mode: PSK Signal: Agg/Svc: Coastal (sea) QSL:
 Remarks: SITOR traffic -<arg>
 Data: 23> / / / 17.220.00 PSK / Signal() #2082
 [Radio] [PSE] [CLS] Terminal Mode [CHG] [CLD] [Si/F] [Qu/ox]
 =LogScan =Log of John Doe

CMD: AL
 MODE NOW ALIST
 .. THIS IS AN AUTO TELEX MESSAGE SYSTEM
 TRAFFIC FOR THE FOLLOWING VESSELS:
 USS FREDRICKS
 HMS VINC...

GA +?

<arg> FILE LOADED

1 Manual 2 Func1 3 Func2 4 Func3 5 Upload 6 TimeON 7 TimeOFF 8 Clear 9 Log 10 Optins

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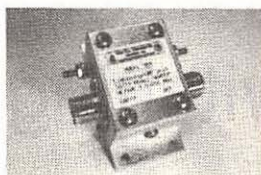
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|----------------------|---|
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| Operating Temp. | -45 to 125 Celsius |
| Discharge Inductor | Toroidal, insulated, 600-1000V, ceramic body construction, G.I. Clare |
| Back-EMF GDU | Less than 1.1:1 over rated spectrum |
| VSWR | Less than 1db |
| Insertion loss | 50-75 ohms |
| Impedance | 18-32 stainless hardware |
| Hardware | 8-32 stainless steel ground lug, 1/8" thick 5032-H32 case, 6-32 mounting hardware |
| Finish | Natural aluminum |
| DC resistance across | 47K to 250K ohms, relative |
| Capacitive effects | Less than 1pf |
| GDU specs. | Meets REA PE-80 |
| Environmental | IEEE S87 CCITT K12 Recommended for indoor service at input bulkhead to station's grounding system. May be used outdoors if protected from direct rain exposure. |
| Warranty | One year standard |

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| MODEL 301/N | 300W, N CONNS. \$31.95 |
| MODEL 301/B | 300W, BNC \$29.95 |
| MODEL 301/R | 300W, RCA PIN \$29.95 |
| MODEL 303/U | 5KWPEP, SO239s \$34.95 |
| MODEL 303/N | 5KWPEP, N CONNS. \$36.95 |

CATV, 75 OHMS

| | |
|----------------------------------|---------|
| MODEL 310, RCV. ONLY, "F" CONNS. | \$26.95 |
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| MODEL 302/B | 300W, BNC \$29.95 |
| MODEL 302/T | 300W, TNC \$29.95 |
| MODEL 304/U | 1KW, SO239s \$34.95 |
| MODEL 304/N | 1KW N CONNS. \$36.95 |

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Strong signal overload also produces distortion products which may be heard over a wide spectrum. A local FM station (102.7 MHz) about six miles from our location could be heard at intervals for several megahertz above and below its assigned frequency.

So, is it any good or isn't it?

The AR2800 did what it was supposed to do—provide affordable, wide-frequency-coverage, multimode scanning with SSB capability, and 1000 memory channels. In spite of our critical review, the radio is an excellent value.

The AR2800 scanner is available from Ace Communications, 10707 E. 106th St., Fishers, IN 46038.

AR2800 vs. PRO2006 vs. AR3000

With the wide acclaim for the popular Realistic PRO2006 manufactured for Radio Shack by GRE, how can we compare it with the new AOR AR2800? Keeping in mind that they are considerably different in their intent, let's take a quick look.

The lower sensitivity, 40-channel memory banks (400 channels total) and better shielding of the PRO2006 makes it a good choice for metropolitan scanner listeners, especially those using external antennas.

The tuning dial, extended frequency coverage and SSB mode make the AR2800 an appropriate choice for someone who is willing to trade performance for compact, low cost, full-featured convenience.

How does the 2800 compare with the same manufacturer's own 3000? Not even close. The hard-to-find AR3000 remains an excellent, general purpose, wide-frequency-coverage scanning receiver which offers considerably better performance than the AR2800, but at considerably higher cost.

Finally, no wide coverage scanner even begins to compare with the shortwave performance of separate communications receivers.

Local and Remote Antenna Switching

Most amateurs and SWLs erect two or more antennas in order to provide coverage of several pet frequencies. Some of us may even desire two or three antennas for a narrow band of HF frequencies in which we specialize. The arrangement enables us to have antennas that provide communications over various path lengths. For example, we may wish to have one 75-meter antenna for high-angle communications (out to, say, 500 miles) and another one for DX work (several hundreds or thousands of miles).

In any event, it becomes an annoyance to disconnect one antenna and attach another to a receiver or transceiver, especially if it must be done several times in a single day or evening. The practical answer to this problem is the installation of an antenna-selector switch.

Numerous commercial antenna switches are available, some of them quite costly. Low-cost switches are often of inferior quality. Here is some information you can use if you choose the practical alternative of constructing your own antenna switch.

Anatomy of a Quality Switch

What are the design guidelines for a proper antenna switch? First, it must be capable of handling the RF power applied to it. This means it should not arc between the contacts or from the switch contacts to the case or ground. Phenolic-insulation switches are okay for receiving antennas. Ceramic switches are best for transmitting-antenna switches.

Secondly, the overall switch assembly should not disrupt the SWR along the feed line. This means that the antenna switch should present the same impedance as the coaxial line (50 or 75 ohms) that we use with it. This criterion is not especially significant from the BC band through 21 MHz, but it can cause unwanted losses and mismatches at 28 MHz and higher, especially in the VHF spectrum. Finally, the switching mechanism should be contained in a metal box that is attached to a quality earth ground. This is not only a safety factor but a preventive measure against dirt and moisture entering the switching circuit.

How to Ensure Electrical Quality

Your antenna switch or relays need to have good insulating material, as discussed earlier. The contacts need to be capable of passing the RF current of your transmitter without heating and subsequent burning and pitting. RF current

from your transmitter can be found by taking the square root of the power (watts) divided by the impedance of the circuit in ohms (typically 50 ohms). Thus, if you have a 50-ohm antenna system and 100 watts of transmitter output power, the RF current will be 1.41 amperes.

The switch or relay contacts should be rated at 2 amperes or greater in order to provide sufficient reserve current rating. The RF voltage (RMS) developed in this example is 70.7 (square root of the power times the resistance). The switch or relay should be rated for twice or greater this voltage in order to accommodate peak-peak voltages, which can rise to 199.4 for 100 watts at 50 ohms. I would choose a switch or relay that is rated at 250 volts or greater.

The conductors that are used between the coaxial connectors and the switch or relay contacts must be short and direct if we are to minimize the disruption of the line impedance at HF. Stray inductance caused by long leads of small cross-sectional area must be avoided. I like to use strips of flashing copper that are 1/4 or 3/8 inch wide for my connecting leads. The shield braid from RG-58 or RG-59 coax cable is suitable also.

Short lengths of RG-58 or RG-8 may be substituted for the copper strips or shield braid if your switch box is large enough to accommodate them. If you use coax line for your leads, be sure to ground the shield braid at each end of these lines by making it common to the metal box that houses your unit. Try to locate relays with fairly short leaves or arms for use in your remote antenna switcher.

Practical switches

Figure 1 shows a simple manual or local antenna switch. It may be mounted on the wall near your radio. The coaxial connectors you use should match the male connectors on your feed lines. Some SWLs prefer RCA phono jacks, whereas ham operators generally use SO-239 (UHF) or BNC jacks.

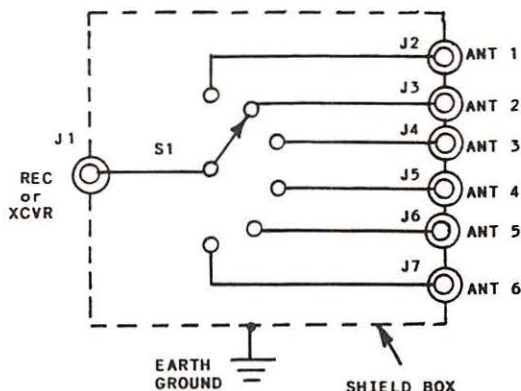


Figure 1: A manually operated antenna selector switch. S1 is chosen for the number of antennas in use. As shown here, S1 is a single-pole, six-position wafer switch. See text for details about switch selection.

My manual switch unit contains an Ohmite power tap switch that has a single-pole, six-position format. It has a diameter of 1-3/4 inches and is 1/2 inch thick. The large contacts handle high current and the insulation can sustain very high RF voltage. I use an Ohmite no. 111-6 switch. These are available new from Newark Electronics for approximately \$15. I bought mine for 75 cents at a radio flea market. I suggest you shop around for a bargain-price ceramic switch. My switch is housed in a 2 X 3 X 5 inch aluminum Minibox.

Figure 2 shows the circuit for a three-pole remote antenna switch. Two 12-V dc relays are used for selecting three antennas. This circuit enables you to use a single 50-ohm coaxial feed line for three antennas. The power supply and control circuits are built in a box that is used in the radio room.

K1 and K2 of Figure 1 should be mounted on a sheet of clear Plexiglass or similar insulating material if the remote switcher is used for transmitting antennas. This helps prevent arcing between the relay frame and ground. In a like manner, RF chokes are used to isolate the relay field coils from RF voltages for transmitting applications. These measures are not necessary for antennas you use for only receiving.

The remote switch box should be sealed against dirt and moisture. I use a home-made box that I made from sections of double-sided PC board. The U-shaped aluminum press-fit lid is attached to the box with four no. 6 sheet-metal screws. The lid is sealed around the box by means of bathtub caulking cement.

My control cable is Belden no. 8444 with four conductors. I use 100 feet of this cable. It is buried in the ground from the house to the base of my tower. Any four-conductor cable that has no. 22 or heavier wires is suitable. Radio Shack phone cable may be used if you wish to keep the cost low. The level of soil acidity will determine the longevity of buried cables.

I use surplus 12-V dc relays for K1 and K2 in Figure 2. I bought the pair for 50 cents a piece

at a flea market. Check the Hosfelt Electronics catalog for bargain-price 12-V relays. (1)

D1 and D2 in Figure 2 are transient suppressors that clip peak voltages caused by the collapse of the K1 and K2 relay fields. S1 can be a low-cost imported phenolic wafer switch. It needs to handle less than 200 mA when both relays are engaged.

The remote switcher can be powered by a simple, unregulated dc supply. A Radio Shack 12-V transformer and 1-A full-wave bridge rectifier will suffice. Use 100 to 1000 μ F of capacitance as a filter at the output of the rectifier. Alternatively, you may use a 6-V transformer with a voltage-doubler rectifier. In fact, you may already have a dc power supply in your radio room. If so, simply rob the operating voltage from it.

Wrap-Up

Certainly, there are opportunities for variations in the methods I have described for antenna switching. The important thought is to scrounge for the parts and keep the cost low. Not only will you have a useful gadget after you build your switcher, but you will have fun constructing it. Achievement is an important part of our radio pastime.

Sources:

(1) Hosfelt Electronics, Inc., 2700 Sunset Blvd., Steubenville, OH 43952. Phone 800-524-6464 to obtain catalog. Also check All Electronics, 905 S. Vermont Ave., Los Angeles, CA for relays and switches. Phone 800-826-5432 for catalog.

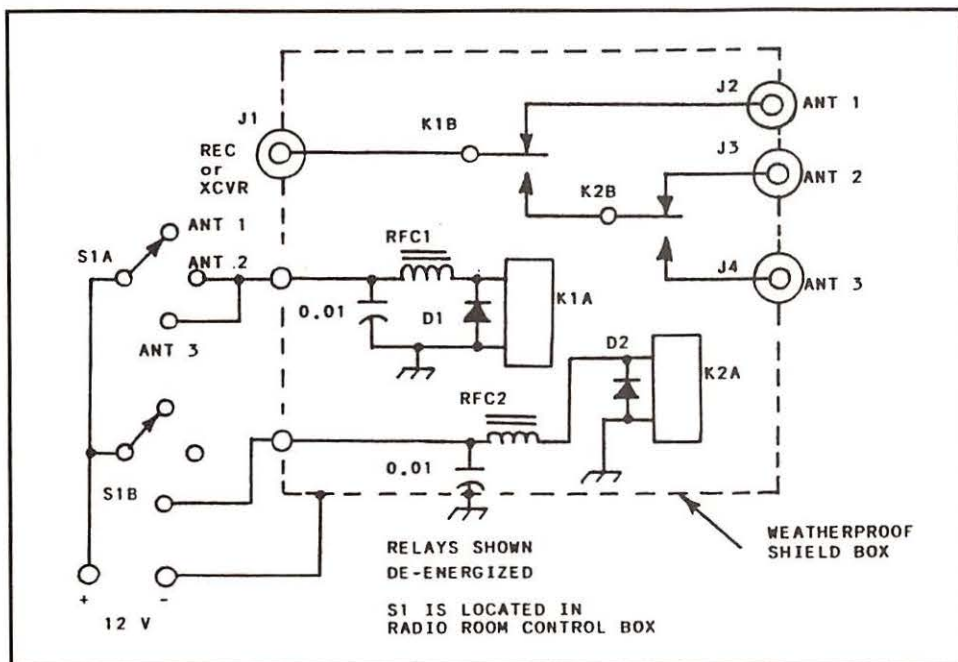


Figure 2: Circuit for a remote, relay-operated antenna switch. D1 and D2 are 1N914 or equivalent silicon diodes. K1 and K2 are 12-V, SPDT dc relays (see text and reference no. 1). RFC1 and RFC2 may be deleted if the switch is used only for receiving antennas. They consist of 15 turns of no. 24 enamel wire on an Amidon Assoc. FT-37-43 ferrite toroid (850 μ H, 3/8 inch OD) or equivalent. S1 is external to the relay box and is located in the radio room.

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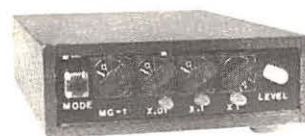


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On Your Mark: A Precision Frequency Standard

A yardstick or tape measure is fine to gauge the dimensions of your shack or even the lengths of coaxial cables and antennas. If your measurements are off a little, no big deal. Let's see, a quarter-inch error in 20 feet comes to .1 percent. Not bad.

But make a .1 percent error in the measurement of a radio frequency and you could miss the mark entirely. For example, at 7 MHz a .1 percent error is plus or minus 7 kHz. At 70 MHz the error is plus or minus 70 kHz and at 700 MHz, it is plus or minus 700 kHz. In all three cases a .1 percent error is enough for you to miss catching a desired signal.

Suppose word gets around that a certain pirate broadcaster fires up on 7350 kHz every Saturday evening. If your receiver readout or measurement methods are off by plus or minus 7.3 kHz, you might miss the fun. Forget fun altogether if you're working VHF or UHF with a .1 percent error.

So how can you know with a high degree of assurance where your receiver is tuned or how accurate your frequency counter is?

If you have a modern transceiver, shortwave or scanner receiver with a digital readout, chances are the display is a lot more accurate than .1 percent—perhaps closer to .001 percent, so no problem, right? For the most part, no.

But what about those older rigs and current low budget models with analog tuning dials? Or what if you've turned some screws inside your cherished digital wonder and accidentally tweaked the internal frequency standard out of its precise setting?

An experienced hobbyist or technician might use a frequency counter to confirm dial settings or to reset a maladjusted Master Oscillator. This will not necessarily restore accuracy. Who's to say that the frequency counter is any more accurate than what is to be measured? As a matter of fact, most hobby-grade and some lab-grade frequency counters are not particularly accurate, especially a few months after leaving the factory.

Write this down: most all things drift, including oscillators, electronic component values, receiver dial readouts and even the earth's rotation. Monitoring enthusiasts need a special kind of yardstick with which to periodically check the accuracy of receiver dials and frequency counters. One very good way to check the dial accuracy of a shortwave receiver is to tune WWV's reference standard carriers at 2.5, 5, 10, 15 and 20 MHz. Standard carriers of other nations can be used for this purpose, too, but there are problems with this method. One is Murphy's Law, which says just as soon as you need a WWV

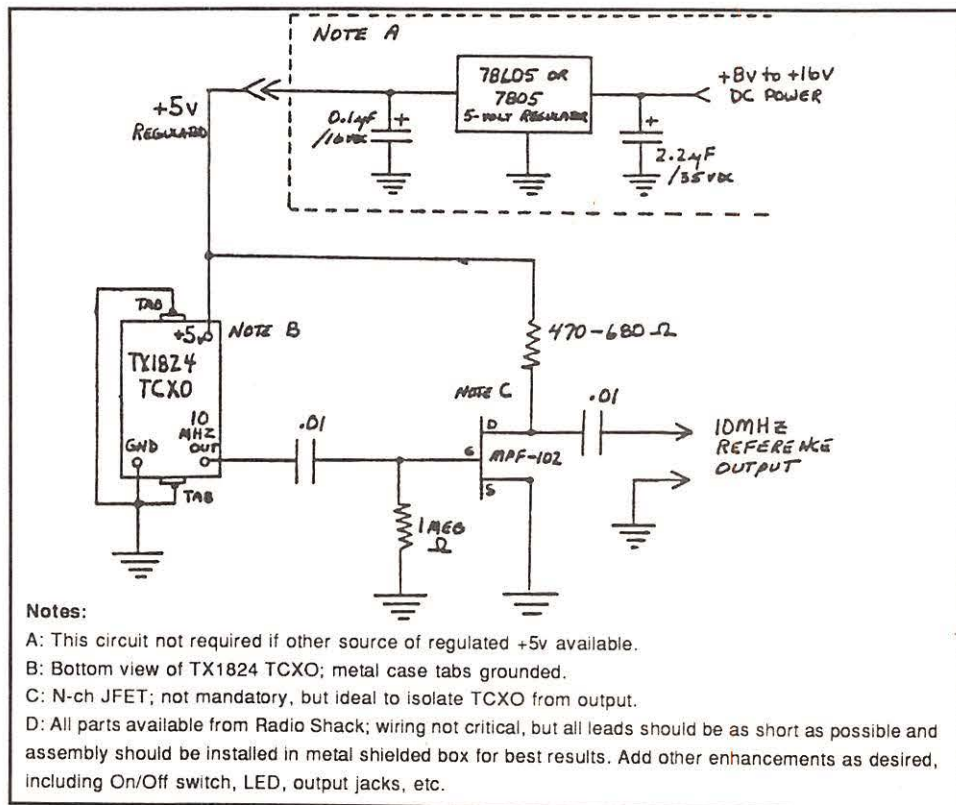


Figure 1: Wiring Diagram for 10 MHz Frequency Standard

signal, propagation conditions won't permit it to be tuned in at that moment. Also, WWV signals can't help with VHF/UHF rigs for obvious reasons. Further, WWV signals are not particularly useful for directly calibrating frequency counters.

The solution to your frequency measurement problems is to set up a subsidiary of WWV right in your shack. Some of you already have one and don't yet know it. A TCXO (Temperature Compensated Crystal Oscillator) will do the job and it doesn't get much simpler or much better than that. TCXOs are self-contained crystal oscillators with special components to offset the forces that cause frequency drift. A TCXO can add new dimensions to your frequency measurement capability.

Time was when you pretty much had to build your own TCXO unless you had a small fortune to spend on one ready-made. Now, at least one company makes an inexpensive small, metal-shielded, sealed TCXO which has a rock-solid, stable, accurate 10 MHz signal good enough to calibrate all but laboratory-grade frequency counters and virtually all receiver dial readouts, digital and analog. That company, known in Japan as Tokyo-Denpa and in the USA as T.E.W.,

manufactures a TCXO under part #TX1824N (10.0000 MHz). Measuring only 10 mm high by 18.5 mm long by 12 mm wide, this little beauty requires only three connections: (1) ground, (2) 10 MHz output and (3) +5 volts DC power. See Figure 1 for how to wire one up with a few simple extras to make it a most useful, stand-alone, all purpose frequency standard.

This TCXO comes calibrated from the factory, although there is a hole in the top of the shielded can to access a trimmer capacitor for precise setting if you have a more accurate reference standard. See the sidebar for the U.S. distributor of this inexpensive TCXO and for a source of information on how you can easily calibrate it if necessary.

I said that some of you already had one of these TCXOs and didn't know it. Indeed, one lurks on the PLL board as X-301 inside Realistic PRO-2004, PRO-2005 and PRO-2006 scanners. It's the Master Reference Oscillator for the Phase Locked Loop and for all frequencies generated within these scanners. I measure and test this TCXO in every PRO-2004/5/6 which crosses my bench and have found virtually every one to be within 0 to 15 Hz of 10 MHz, even in older PRO-2004s. In one case the error was 22

Hz and in another, 46 Hz. I believe operator mis-tweaking was the cause in both instances.

It is with some experience and a high degree of confidence that I recommend this TCXO as a precision frequency standard for your shack. It does not drift with changes of temperature, and if provided with a regulated +5 volts as shown in Figure 1, then it will be as stable as the Rock of Gibraltar. In fact, the only thing out of your control that can make this TCXO drift is age, and that's a factor of years. Check the sidebar for a source of information on how to easily tap the output of your scanner's TCXO so that you don't have to buy a separate one. Otherwise, all that's left to do is acquire one of these TCXOs, install it with the circuit shown in Figure 1 and leave it powered up full-time for use as a frequency standard to periodically check receiver dial readouts and frequency counters.

Angled Bracket for Portables

Wesley Thompson of Huntingdon Valley, Pa., gets the Ingenious Idea Of the Month award with his angled holder for ATS-803A, DX-440, and other portable SW receivers. Wesley says, "As a portable, my Sangean ATS-803A is great -- but on a desktop where I use it most, it tends to tip over unless held in place. Scrounging around for materials available in my garage, I constructed a sturdy, angled holder in about an hour.

Here's what I used: 3/4 inch board, plywood

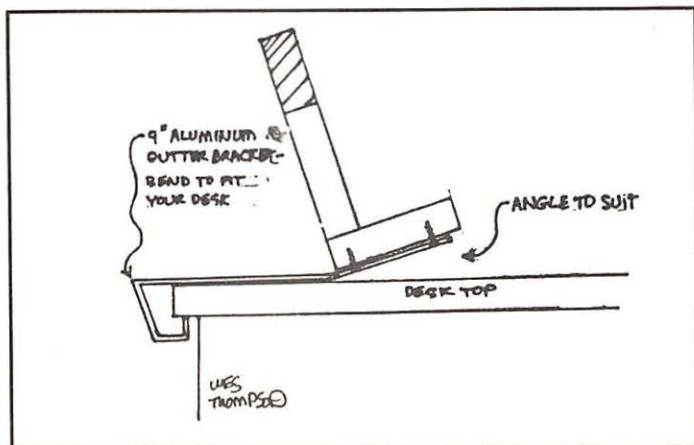


Figure 2

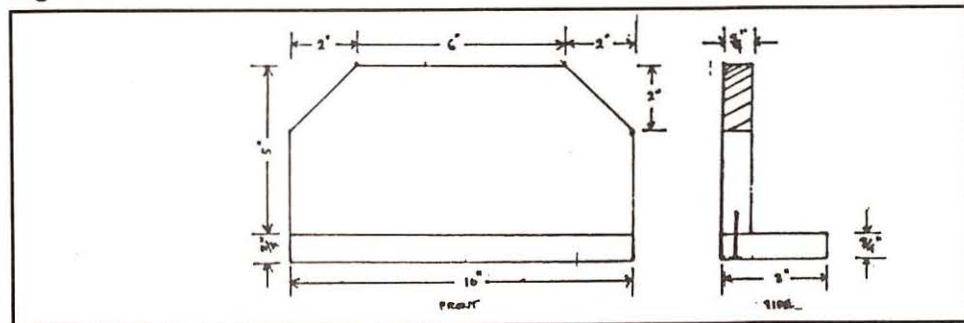


Figure 3

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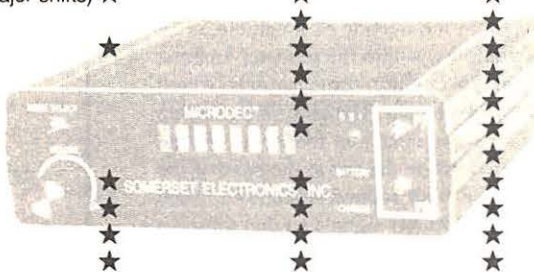
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or pine; two 9 inch aluminum gutter brackets; finishing nails; wood glue (optional); wood screws. Refer to Figures 2 and 3 and cut the wood to dimension. The angled corners on the back are necessary to allow room for the external antenna. Finishing nails and a little wood glue will affix the back board to the base board.

Bend the aluminum

brackets to fit the back edge of your desk or table and then screw the wood base to the front parts of the brackets. Install the bracket assembly on your desk and then bend the base part upward to an angle that suits your needs and tastes.

Place the radio on the base. Lean it against the back plate and make final adjustments as needed. Finish the wood parts with varnish, stain or paint as desired. Voila! A stable platform for your portable receiver."

mt

Sources:

USA Distributor for T.E.W., Spectrum Electronics, 5903-B Peachtree Ind. Blvd Norcross, GA 30092, 800-762-0420/404-448-1516

Realistic replacement parts, Tandy National Parts 900 E. Northside Dr., Ft. Worth, TX 76106 800-442-2425/817-870-5600, Part #TX1824G-3 for PRO-2004/5/6

Info about tapping the TCXO in the PRO-2004/5/6 and calibrating and using the TX1824 TCXO: The World Scanner Report (a monthly newsletter on scanner technology and modifications), P.O. Box 262487, San Diego, CA 92196-2478

A Passive-Repeating Antenna System

Lately I've seen ads for passive-repeater antennas to be used with hand-held cellular phones. These repeaters are simply antennas which are put on the outside of a vehicle, or in one of its windows, where the repeater antenna has a chance to capture some signals which cannot get inside the car. The signals picked up by the capture antenna are fed to a second antenna located inside the car at the base of the repeater antenna. This second antenna captured re-radiates the captured signals so that they are available within the car for use with a hand-held cellular phone.

This repeating action is done by the passive-repeater antenna with nothing other than two antennas coupled together. This means there are no transistors, ICs, or signal amplification: thus the name passive-repeater antenna.

Down in the Valley

Seeing these antennas advertised made me think of a design for a passive-repeating antenna system I had seen long ago for bringing signals over a hill into a valley. The repeater consists merely of two halfwave dipoles connected by a feedline (see Figure 1A). One antenna, the capture antenna, is located out of the valley over the crest of a hill, while its feedline runs back over the hill to a second antenna in the valley. The captured signal thus brought into the valley is then re-radiated into the valley via this second antenna. Radio reception that was formerly not available in the valley now becomes possible.

Using a passive repeater to transmit out of the valley is also possible, it just works in the reverse direction compared to reception. To be quite honest, using a passive repeater is not as satisfactory as moving the hill out of the way, but it is a lot more practical.

Turning Things Inside Out

This idea can be utilized in many situations in monitoring and amateur radio. For instance, in situations where incoming signal levels are very low inside a metal building you can use an outside capture antenna linked via a feedline to an antenna inside the house near the operating position. This would allow you to use a hand-held scanner or transceiver at your operating position inside the metal building with only the whip antenna attached, as in normal hand-held use.

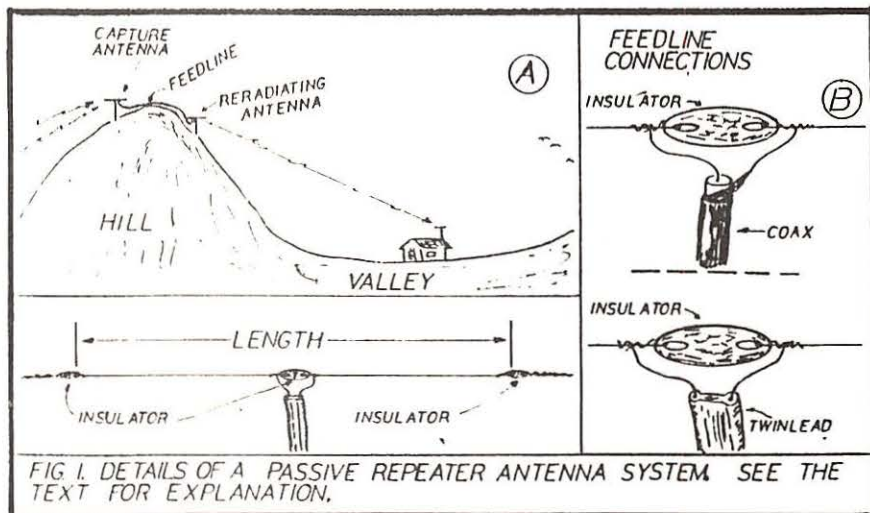


FIG 1. DETAILS OF A PASSIVE REPEATER ANTENNA SYSTEM. SEE THE TEXT FOR EXPLANATION.

It's Easy to Make

The basic idea of a passive repeater can be used for any band, although they are more practical at HF and higher frequencies due to size constraints. To give the basics for making your own passive repeater, we'll follow the steps for constructing one for use with a hand-held HT on a frequency of 146 MHz in the two-meter amateur band.

1. Make two identical dipole antennas for 146 MHz. Their length is determined by the formula below. This is the finished length of the antenna. If you use wire elements for your antenna, you will need to add a few inches to that length to accommodate wrapping the ends of the wire around the insulators you use. If you use tubing for the elements, then there is no end insulator and the tubing is bolted to a center insulator. Therefore, when using tubing, the elements are cut to the length found with the formula.

Total dipole length for the finished antenna is:

$$L \text{ (in feet)} = \frac{468}{F \text{ MHz}}$$

For example, at 146 MHz, the overall length of a halfwave dipole antenna is: $L = 468/146 \text{ MHz} = 3.2 \text{ feet}$ or 3 feet 2.4 inches.

2. Get enough coaxial cable or twinlead cable to run between the two locations you intend for your antennas. Remember the longer you make the run between antennas, the more loss there will be in the feedline connecting the two antennas, so don't make the run longer than necessary.

In view of the possible low-signal levels of the re-radiated signal, it is probably best to use 75-ohm cable for the connecting feedline, although other impedances might work okay. For the same reason, you should use a good quality, low-loss line at VHF, and definitely at UHF frequencies. Twinlead's loss is less than that of coax. Connect the feedline to both antennas as shown in Figure 1B.

3. Mount one antenna where it is well exposed to the signals you wish to receive; mount the other antenna inside the building close to where you will be utilizing the hand-held transceiver or scanner. Neither antenna should be close to the metal walls.

For most communications on the higher bands, vertical positioning of both antennas (vertical polarization) is likely to produce better results.

4. Position yourself near the indoor antenna and check out the antenna's capabilities. Good luck, and let me know of any unusual or interesting results you get.

Hints and Tips Department

- Long-time *MT* reader Dick Hedlund, who lives in Honolulu, writes to say that he has devised what he calls the "suck 'em up" antenna by putting a small Radio Shack¹ discone antenna on top of his MAX 800² groundplane antenna. In his words: "I put it on top of MAX's top element, sans rubber bushing, rests in 259 hole, and voila! — all freqs respond from scanner low to 900 plus."

- And Gregory Dome, of San Antonio, Texas, writes to say that the Slinky toy (you know, the

coiled spring that "walks" down stairs) makes a great indoor antenna. Once popular as a novelty antenna on the HF bands, the Slinky must be stretched out along a wall or across a room, etc.

He also reminds us that electric fence wire is a good substitute for antenna wire, and, in Texas, it costs him only \$8 for a quarter mile. Wow, you can make a lot of antennas with that!

• Recently the telescoping antenna broke off my cordless phone. It was broken right at the base, but the remainder of the bottom of the antenna, which extends down into the cordless phone, is a hollow tube. The price of a new replacement antenna was more than I wanted to pay, so here's the solution I came up with.

Take a piece of single-conductor house-wiring or other wire which is stiff enough not to lose its shape too easily. Cut a piece about a foot long. Trim the insulation off the bottom few inches, just enough to go to the bottom of the old antenna base tube in the cordless phone. Make the trimmed bare wire portion "wavy" by putting several bends in it. Keep the waves small, so that it can still be forced gently into the old antenna base tube, and check to see that the waves are big enough to hold it in well.

Since I used wire with white insulation, it even matches my phone and looks good. And, although it is much shorter than the original telescoping antenna which came with the phone, it works out just fine. If you want to add a finishing touch, you could hold the wire, top-tip downward, and dip the tip into contact cement a few times, drying it between dips, to make a neat professional-looking tip cover.

RADIO RIDDLES

Last Month:

Last month I asked you: "What is a passive repeater, what is passive about it, and what does it repeat?" Well, the answer is pretty well covered in this month's column, isn't it? So, on to this month's riddle.

This Month:

What's the difference between a Marconi antenna and a Hertz antenna? What are these two antennas, anyway?

So, that's it for this month. Get the answer to this month's Radio Riddle and much more in your next month's issue of *Monitoring Times*. Till then, Peace, DX, 73



¹Radio Shack is a registered trademark of the Tandy Corporation.

²MAX is the registered trademark of the Cellular Security Group.

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| FRG-8800 150khz-30mhz, 12 Memories, Scans | 679.00 |
| GRUNDIG 500 1.6-30mhz, Memories, Scans | 499.00 |
| SANGEAN ATS-803A 150khz-30mhz + FM, Memories | 189.00 |
| SONY SW7600 150khz-30mhz + FM + SSB, Memories | 219.00 |
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Reading Monitoring Times teaches me more about monitoring each month. I find it very helpful and look forward to each issue!

1991 Survey Comment

Q. My scanner presently goes no higher than 512 MHz. Can it be modified to receive the 800 MHz cellular frequencies? (numerous)

A. No. Scanners that have no 800 MHz band coverage lack any components which allow 800 MHz capability; to hear that frequency range on such a scanner, an external converter is necessary.

Q. Why are the bandwidths and tuning increments on my scanner different for low, high, and UHF? (Huson Wilken, Oswego, NY)

A. Bandwidth is measured as the span of frequencies in which signal loss is no greater than 3 dB at each end. Low band (30-50 MHz) is 20 MHz wide; high band (144-174 MHz), 30 MHz; and UHF (406-512 MHz), nearly 100 MHz. Designing filters for different bandwidths at different frequencies does not result in consistent characteristics.

The tuning increments vary with the FCC standard channelization plan: low band, 20 kHz; high band 15/25 kHz; and UHF, 25 kHz. Some ranges are offset by 12.5 kHz from their simple, whole-number steps (165.2375 rather than 165.225 or 165.250 MHz).

Q. Many military receivers like my R392 have poor sensitivity (8 microvolts); how would they work for pulling in DX on a 108" CB whip? (Alan Mark, Pembroke, MA)

A. About as well as you would expect. These older receivers were designed either for short-range communications, or to be used with giant antenna complexes, so they didn't need high sensitivity. Use a decent length antenna (50-75 feet) and you will hear something.

While it is true that at shortwave frequencies (3-30 MHz HF range) atmospheric noise is so great that sensitivities of under 1 microvolt are unnecessary, weak signals will elude short antennas on receivers which require several microvolts of signal strength.

Q. Is cordless telephone eavesdropping coming to an end with the introduction of scrambled phones? (A.C., Baltimore, MD)

A. Probably so, assuming that the scrambling is digital. The only consumer descramblers ever made were voice inversion (analog), and even they are unlawful to sell, build, own or use under the Electronic Communication Privacy Act (ECPA '86).

Q. Why do East Coast listeners get better shortwave reception than West Coast? (Clyde Copeland, Jr., San Francisco, CA)

A. There's no international conspiracy; it's just that the big European international broadcasters, in order to reach their target audiences more effectively, beam their signals across the short-path Atlantic, not across long-path Asia and the Pacific. If it's any consolation, you should hear the Pacific-rim Asians better than the East Coast does!

Q. What is meant by "propagation"? How do signals "bounce"? (Paul Siegmann, Marshfield, WI)

A. Propagation refers to the method by which a radio signal travels through space; "bouncing" may be involved. Several hundred miles overhead the remaining atmosphere is electrically charged by the sun's radiation; this charged layer, the "ionosphere," is capable of absorbing certain wavelengths of radio energy, while reflecting others. The phenomenon is seasonal because of the sun's varying elevations and distances. Solar eruptions ("flares") also alter these characteristics.

Radio waves may also reflect from large surfaces like buildings and mountains, as well as follow the contours of the earth's surface.

Q. My shortwave receiver has a lithium backup battery for the memory. When it fails, is it necessary to have it replaced? (Clyde Copeland, Jr., San Francisco, CA)

A. I'm afraid so, Clyde; if it weren't an essential part, I can assure you the frugal Japanese manufacturer wouldn't have put it in there! Backup batteries provide constant power to the microprocessor control circuitry when AC power isn't turned on or was interrupted from the mains. Without this power, the receiver's memory and control instructions would be lost. Usually battery replacement at the factory is about a \$25 job; it can be done by a local technician as well.

Q. My surplus receiver (a BC-348) doesn't have enough audio power to drive a speaker. Could you print a schematic for a simple amplifier? (Alan Mark, Pembroke, MA)

A. The audio power of a BC-348 is adequate for an external speaker if the impedance is properly matched. Go to Radio Shack and purchase their #32-1031 line matching transformer (\$5.95); it has a wide range of taps to match virtually any audio requirement.

Q. Will an attic antenna be safer from lightning than a rooftop antenna? (Bill Silvey, Shelby, NC)

A. Yes, but not because the roof will help much. The fact that it is farther from the cloud means that the lightning must build to a higher voltage before it strikes, so it is more likely to strike a higher object like a tree, power line, or TV antenna.

Q. Is a four-foot ground rod adequate to drain static buildup on my antenna system? (Clyde Copeland, Jr., San Francisco, CA)

A. If the soil is damp, yes. Generally speaking, two eight-foot ground rods separated by about 8-10 feet are recommended for effective grounding, both for transmitting and receiving. Dry, sandy soil makes the worst ground.

Q. Is there any way to reduce the awful buzzing interference to shortwave reception caused by touch lamps? (Pete Dulac, St. Mary's, GA)

A. Yes. Unplug the lamp, then carefully remove the felt bottom from the lamp which reveals the control box. Remove the box and pry off the lid. Solder one .01 microfarad, 600 volt disc capacitor across the solder pads which connect to the line cord, and one more across the cord that goes up to the lamp switch assembly.

It may be tempting to completely eliminate the interference by using a hammer; however, if you intend to keep the lamp, simply cut the module away from the two cords and splice the cords together so that the normal manual switch controls the lamp.

Questions or tips sent to "Ask Bob", c/o MT, are printed in this column as space permits. If you desire a prompt personal reply, mail your questions along with a self-addressed stamped envelope (no telephone calls, please) in care of MT.

Q. I was told two "tips" for better antenna performance: (1) place a resistor between the receiver and antenna; the receiver will see a higher impedance and perform better. (2) Decouple the antenna with a small capacitor between the antenna and ground terminals of the receiver.

I tried both tricks and nothing happened. How come? (John Mayson, Atlanta, GA)

A. Not surprising. There are many myths in radio; you have just discovered two of them!

A resistor can do nothing but waste energy, in this case signal strength. When connected in series with the antenna, less signal voltage will arrive at the receiver because it is dissipated as heat in the resistor. When connected from antenna to ground, signal voltage will be bled to ground.

A capacitor shunted between the antenna and ground connection may find one narrow band of frequencies at which it tunes the inductance of a random wire antenna and peaks the S meter slightly (but not enough to make a difference in reception), but at all other frequencies it

will either reduce signal strengths or have no effect at all.

Here's a better tip: Don't use either tip!

Q. Why do agencies that scramble their transmissions do so only part of the time? (Tony Krzywiec)

A. Scrambling reduces intelligibility and range. It is unwise to scramble routine traffic which may compromise communications clarity.

Q. When I looked at the FM radio in a local restaurant that was playing background music (Muzak), I noticed that it had an auxiliary box connected to it. The receiver was set to 89.9 MHz, but when I tuned that in on my car radio, I got different programming. What gives? (Pete Dulac, St. Mary's, GA)

A. You have discovered the miracle of SCA—subsidiary carrier authorization. This is a process by which a standard FM broadcaster can transmit simultaneously other independent services on the same signal.

Stock reports, medical seminars for doctors, news, background music—you name it; anything is allowed on this service which can only be received by a receiver equipped with a narrowband FM detector tuned typically 67 kHz away from center carrier.

Bob's Tip of the Month

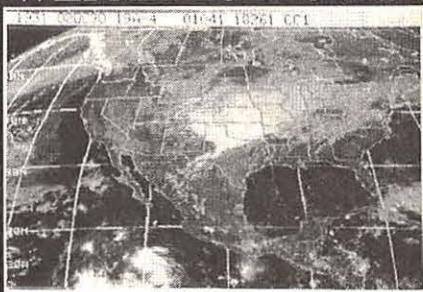
Test Mode for the NRD 535

David Zantow, N9EWO, of Janesville, Wisconsin, has discovered an autotest procedure for his new JRC NRD 535 (it doesn't work on the 525):

- (1) Select "FREQ" mode
- (2) Enter 99,999.99 (fill the display with 9s)
- (3) Press "ENT/KHZ"

At this point all characters on the display as well as the LEDs will light. Pressing any key will then revert the receiver and displays back to normal.

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LETTERS

continued from page 3

become more commonplace, creating "a 'CB'-like atmosphere in all the radio applications? Are the specialized radio bands, such as those used for the shuttle mission, going to be the next target?"

New technological solutions have definitely created new headaches. But even though some days may catch you wishing you could time travel to the '30s, you never know when that same technology will open up a new world.

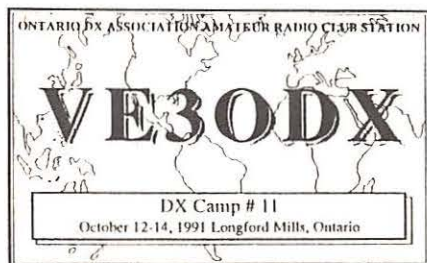
Peter Warnecke (Vallejo, CA), a relatively new subscriber, says, "This is the first magazine that I'll put aside and save for reference." An off-and-on SWL for years, Peter says that since taking up scanning he's having to reread all the *MT*'s to catch the articles he skipped before. He still "skips the TV/SatComm stuff."

That's OK, Peter. All in good time! Even Walt Breville, who declares "I will never EVER get a computer!" may eat his words someday.

Can't attend the *MT* Convention? Don't despair; opportunities for rag-chewing, DXing and browsing the flea markets still exist this fall.

The best way for a hobbyist to celebrate Thanksgiving Day in Canada is DXing, of course. The Ontario DX Association's amateur radio station, VE3ODX, will be camping out at Lake Couchiching, 75 miles north of Toronto, October 12-14 (Canadian Thanksgiving weekend).

If you can catch them on 80 through 10 meters, there will be a special QSL card issued for reception reports. The club can be heard on its own net at noon on Sunday (7.068 MHz LSB) or on the ANARC net (7.240 MHz) at 10 a.m. Send reports to VE3ODX, P.O. Box 161, Station A, Willowdale, Ontario, M2N 5S8.



If you miss Bob Grove in Knoxville, he will be a speaker at the Chattanooga hamfest October 26. For more information write Arthur Parry Jr, WB4BGX, 1100 Hubbard Road, Signal Mountain, TN 37377.

Bob will also be participating in a forum at the Surveillance Expo in Washington, D.C.

A Matter of Opinion

Thomas Jefferson Would Have Owned a Scanner

James J. Brodell, NOMKK, Denver, CO

Scanning the police and fire frequencies is much more than a diversion from the usual commercial television mush. Scanning has profound rights and obligations linked to the U.S. Constitution and the fundamental rights of citizenship.

In fact, a valid argument could be constructed that every citizen should own and use a scanner in much the same way citizens are urged to cast ballots on election day. If Thomas Jefferson were alive today, he would have his scanner tuned to the local police and fire frequencies.

Jefferson, if you remember, was one of the guys who was scared to death of big government. The history of American has been the conflict between aristocratic landowners and the working class. The question boils down to who will run the country: the people, or special interests who (because of their money and power) can easily influence official actions.

If you agree that citizens must shoulder the obligation for making informed decisions on government, you also must agree that the citizen has an obligation to gather all possible information on the effectiveness of government, hence the scanner.

One cannot listen to police and fire calls for more than a few minutes without developing a deep respect for public employees. Yet, police have enormous power which is not always used for good.

The KGB aside, there are times and cities in this country where police have run amok. In Denver, policemen formed their own burglary ring and gained nationwide attention in the 1950s. Many southern departments were enemies of the Civil Rights Movement. In Chicago, television viewers saw in 1968 what was later called a police riot. In Los Angeles, police officers now stand accused of beating a defenseless black motorist.

Over the last 30 years, police have significantly decreased blatant racial characterizations. In part, this is because younger, better-trained officers have taken over. But the change also is due to an increase in citizen monitoring with more efficient scanners backed up by archival taping at headquarters.

With high stakes involved, including the survival of democracy, the obligations of the scanner hobbyist are far from passive. Morally, guilty knowledge makes an individual guilty. So the citizen-hobbyist must be prepared to act when public officials lurch out of control.

In each city there are a handful of monitors who keep the news media informed of major police and fire developments. Some hobbyists might think major news organizations are crack-erjack scanners. On the contrary, newspaper police reporters have a police radio, but few have any more skills than turning on the box.

Establish credibility with the local newspaper by providing frequent news tips. When

serious issues arise, the reporter will be more inclined to listen to and respect the person who has provided good information in the past.

Newspaper executives generally are not aware of how complex the near-term future will be. Few have ever heard of computer-assisted dispatch, trunk systems or scramblers. Those who have heard found too late that these technical advances hurt their news-gathering capability. So they need help.

Take Harrisburg, Pennsylvania, for example. The police there have instituted a scrambler system which sounds "like a Slinky would if a Slinky could talk," according to Ted Anthony, a police reporter at *The Patriot-News*. He blames publicity-shy officials, who at one time claimed the very act of scanning police frequencies was illegal until a call to the FCC set them straight.

The newspaper, as a result of the scrambler devices, already has missed major news stories, including a drug buy which degenerated into a shootout, said Anthony.

Soon Harrisburg will introduce a half-million-dollar computer-aided dispatch system the newspaper is not prepared to monitor.

In addition to informally helping news reporters, scanner hobbyists can take the lead in requiring cities to show justification before introducing devices which cut down or eliminate citizen oversight of law enforcement.

A convincing case can be made that police officials should require strong reasons before they allow patrol officers to broadcast on a scrambler. That they do not want anyone else to hear is not sufficient cause.

The First Amendment provides the theoretical framework for a constitutional right to monitor public frequencies. Implicit in the right of a free press is the right to gather information about government activities. Newspapers frequently exercise and defend the right to gather information.

Scanner hobbyists generally do not characterize their hobby in terms of constitutional rights. They should. The Founding Fathers wanted to make sure citizens had enough information to make public decisions. And they wanted to make sure a large government bureaucracy did not abridge these rights.

A parallel may be found in public records laws of most states which require police records to be open to viewing by the general public. Very specific laws outline those records which may be withheld: the names of confidential informants and details of secret police procedures, for example.

The same should be true with confidential broadcasts: the police should have a legitimate reason specified by written policy in order to scramble broadcasts.

Otherwise, the citizen will be denied information legitimately needed (and constitutionally protected) to perform the oversight mandated by a democracy.

Imagine Jefferson, the man whose fiery pen constructed the not-too-subtle Declaration of Independence. What would he say if his police department wanted to scramble its routine broadcasts?

November 14-26. If curiosity or necessity makes surveillance of interest to you, Surveillance Expo '91 will concentrate on communications and computer security and investigations technology. For information on attendance, contact Marilyn Roseberry, American Technology Assoc., P.O. Box 20254, Washington, DC 20041; 202-331-1125.

During our family vacation in San Francisco this past summer, I was startled to pass a store (too quickly to grab a photo) with COUNTERSURVEILLANCE spelled out in neon

lights. Your city may also possess a "Spy Store." Surveillance and countersurveillance are becoming a part of modern life, it seems, not just a concern of government organizations and private investigators.

Check out the Convention Calendar for other goings-on in your area. If I don't catch you at the MT Convention, see you next month with pictures and more good monitoring times.

- Rachel Baughn,
Editor

We'd like to hear your comments, opinions, and experiences concerning the world of radio. Please understand that personal replies are not always possible.

*Letters should be addressed to **Letters to the Editor**, Monitoring Times, P.O. Box 98, Brasstown, NC 28902.*

CONVENTION CALENDAR

| Date | Location | Club/Contact Person |
|-----------|-----------------------|--|
| Oct 4-6 | Knoxville, TN | 1991 Monitoring Times Convention/Contact Judy Grove P.O. Box 98, Brasstown, NC 28902 Location: Hyatt Regency; Registration 10/4 3:00 to 6:30pm; \$35 registration fee |
| Oct 6 | Huntington, IN | Huntington ARS/Mike Brooker, WD9JFC 3341 E. 722 N., Huntington, IN 46750. |
| Oct 6 | Rome, GA | Rome Hamfest 91/Kelley Lane, KM4MO (404) 235-2208. Location: Rome Civic Center. Talk-in on 147.300+ |
| Oct 11-13 | Scottsdale, AZ | Southwestern Division Convention/Alan Sklar, AA7BJ 5967 N. 83rd St., Scottsdale, AZ 85253. |
| Oct 12-14 | Toronto | DX Ontario Assoc-DX Camp #11 80 thru 10 meters - Sunday 7.068 MHz LSB at 12pm or 7.240 MHz at 10am. Reception reports & QSLs to VE3ODX, P.O. Box 161, Station "A", Willowdale, Ontario, M2N 5S8. |
| Oct 12-13 | Columbus, OH | Columbus ARA 1991 Columbus Day Special Event/Roger Dzwonczyk, WB2EIG 283 E. Longview Ave., Columbus, OH 43202. Oct 12/0000 UTC - Oct 13/2400 UTC. Suggested operating frequencies: 7.240, 14.340, 21.375, 10M novice phone band. |
| Oct 20 | Golden, CO | Rocky Mountain Radio League/Colorado Assoc of DXers* Location: Jefferson County Fairgrounds, 8am to ?? |
| Oct 26-27 | Chattanooga, TN | Chattanooga Amateur Radio Club, Inc./Arthur Parry Jr., WB4 BGX 1100 Hubbard Road, Signal Mountain, TN 37377. |
| Nov 2 | Neosho, MO | NEOSHO ARC/Sheryl Garrison, N0ACB Rt 4, Box 252, Neosho, MO 64850 |
| Nov 4-10 | Pensacola, FL | Serious Hams ARC Special Event Station Celebrating the decommissioning of the USS Lexington AVT-16. Operations will be in the lower portion of the General 80-15 meter subbands and 28.350. QSL to: Mike Brown, N4MAD, 519 S. Edgewood Cir., Pensacola, FL 32506 |
| Nov 23-24 | Tampa, FL | Southern Florida Section Convention/Pat Barbieri, WB1GZW 2225 Glen Dr., Safety Harbor, FL 34695 |
| Nov 30 | Apache Junction AZ | Superstition ARC Hamfest 91/Chuck Kruppenbacher, KB7ICP (602) 986-3060. Location: P & M Rodeo Grounds, NW Corner of Brown Road and Meridian. 7:00 am to 3:00 pm. Admission \$1 per person. Talk-in on 147.12 MHz+ |

* Colorado Assoc of DXers, P.O. Box 22202, Denver, CO 80222-0202 for info

Monitoring Times is happy to run brief announcements of radio events open to our readers. Send your announcements at least 60 days before the event to: Monitoring Times Convention Calendar, PO Box 98, Brasstown, NC 28902.

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Is It High Noon for Scanners?

It seems that our Congressional representatives are intent on shooting themselves in the foot again. In 1986 the Cellular Telecommunications Industry Association (CTIA) lobbied heavily for, and won approval of, the unenforceable and self-contradictory Electronic Communications Privacy Act. Now our elected officials are deciding whether to outlaw scanners that cover cellular frequencies.

Overlooked are the facts that millions of scanners which receive cellular have been in use for over a decade; that non-scanning receivers which receive cellular will still be permitted; that test equipment receives those frequencies; that TV sets and even some VCRs can tune in cellular phone calls; that non-cellular services like Experimental and Part 15 (unlicensed) services and equipment share those frequencies; that readily-available converters are routinely added to scanners that don't have cellular coverage; and so on.

The bill, HR 1674, a revision of Title 47 USC 302 (the 1934 Communications Act) is entitled, "The Federal Communications Commission Authorization Act of 1991".

In contention is Section 8: Interception of Cellular Telecommunications which directs the FCC to deny type acceptance to any scanning receiver which can receive, or can be readily altered to receive, scrambled or unscrambled cellular telephone calls.

The benefit to cellular marketing would be the reinforcement of the mistaken notion that cellular phone calls are more secure than other radio phones because new scanners won't receive those channels, even though millions of existing scanners and TV sets still would.

But more insidious are the long-term ramifications of Section 8 which establishes a dangerous precedent for freedom of the airwaves.

Law enforcement agencies could then request the removal of public safety frequencies to avoid interception by criminals, an issue now very much alive in Washington. The airlines could plead that their communications should be protected from possible terrorist or hijack monitoring. Other services would surely follow.

We are all for the reasonable expectation of privacy. But in an information age where our Social Security and credit card numbers, as well as family, financial and other records are bought and sold daily, the average American is learning to be wary whenever he divulges personal information, by phone or any other medium. Corporate giants should not be entitled to legislative protection that the average American is not.

Security is an individual's own responsibility. The government doesn't shackle every citizen because he may be a potential thief; it mustn't deafen every citizen because he might overhear something he shouldn't.

*Bob Grove,
Publisher*



NOW IS THE TIME TO BE HEARD!

Congressional staffers report that they have had no opposition to the bill; a vote is due at any time. Write or call your congressman or congresswoman, urging him or her to oppose Section 8 of H.R. 1674. If the House passes the bill by press time, contact your Senator. If you don't know the name, address and phone numbers of your representative, call 202-224-3121 at any time and ask.

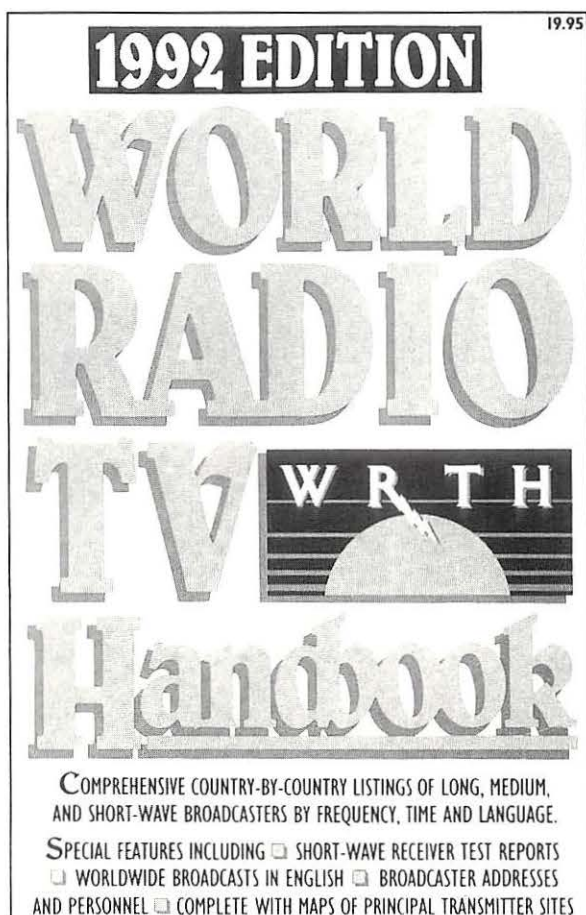
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